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ABSTRACT

This document reports on visits to a dozen enterprises in China jointly owned by the Chinese and foreign countries and to three other enterprises that are exclusively owned by the Chinese or by foreign interests. The document begins with sections called "The Opening Up of the Economy to the Outside World," "Chinese Enterprises," "The Commodity Economy," "Labour Market Developments," "Labour Contracts," "Pay Scales in China," and "Visiting Successful Enterprises in China." The next 15 sections, each of which describes a visit to one of the enterprises, are entitled "Producing Electric Motors the Chinese Way"; "Public Firms Catering to Private Vices: The Cigarette Factory"; "Car Business with Big Business"; "Making Automobiles the European Way"; "Speak English, Work Hard, and Make Money: Innkeeping Lessons from Singapore"; "Hong Kong Cooks to Teach Chinese Cuisine"; "Fixing Cars, Growing Mushrooms, Feeding People, and Operating a Duty-Free Shop: The Multiple Activities of a Zhuhai Enterprise"; "Foreign Investment to Repair Automobiles"; "Mass Producing Bicycles for the World"; "Coca-Cola Cans to the Chinese Market"; "Manufacturing Electronic Parts for Western Markets"; "British Banking via Hong Kong"; "Japanese Printers Made in China"; "Stripped Down Capitalism: The Assembly of Consumer Electronics"; and "German Toys Made by Chinese Peasants." The concluding section of the document is called "Lessons in Training, Management, and Technology." (CML)

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MULTINATIONALS IN CHINA: TRANSFER OF TECHNOLOGY, MANAGEMENT AND TRAINING

BY
CLAUDIO DE MOURA CASTRO

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MULTINATIONALS IN CHINA: TRANSFER OF TECHNOLOGY, MANAGEMENT AND TRAINING *

CLAUDIO DE MOURA CASTRO

Joint ventures between Chinese institutions and foreign enterprises have been one of the main tools in opening up the economy to the outside world and experimenting with market mechanisms. The present paper reports on visits to a dozen joint ventures, in addition to a few exclusively Chinese and exclusively foreign-owned enterprises.

Prior to presenting the individual visits, a brief introduction underlines some of the main features of the new economic policies followed by China. Finally, some common denominators found in the firms visited are summarized.

A. The opening up of the economy to the outside world

Chinese economic policies envisage a double role for foreign investment in the country. It is a means to open up the economy to the outside, increasing the volume of exports and imports. At the same time, it is an experimental ground for trying out market mechanisms - with the rationale that some of the successful ideas may be subsequently applied to the entire economy.

In the last ten years, more than 12 000 joint venture contracts have been approved by the Chinese authorities and close to 6 000 have already been implemented. The firms signing these contracts operate under rules concerning imports, exports, taxes, labour practices and regulation of economic activities which are different from those that apply to domestically-owned enterprises.

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* This paper is a partial result of an ILO Mission to China, organized by the Bureau of Multinational Enterprises and sponsored by UNDP. The purpose of the mission was to visit multinational enterprises in China and comment on the legislation that regulates their functioning in the country. The author is grateful to all the Chinese authorities that organized the visits and supported the team with logistics and patience for our needs. Also very much appreciated was the goodwill and openness of managers and employees of the firms visited.

From what we could learn from interviews with Chinese authorities the requirements for having a project approved are not very demanding and most economic activities are at present acceptable. But it is likely that priorities become revealed in greater efforts to come to terms with the conditions of those foreign partners that are considered as more interesting or desirable.

One of the crucial steps in this opening up of the economy was the creation of the so-called Special Economic Zones (SEZs) in the South, near the borders of Hong Kong and Macao. These zones operate under considerably different regulations. One of the main features of these zones is the incentives offered for foreign investment.

These regions end up by being almost an extension of the economy of Hong Kong. They have easier import and export regulations and, in fact, they operate in very intimate contact with Hong Kong. One clear trend is the tendency for Hong Kong firms to transfer the manufacturing part of their activities completely to these zones. This is particularly true with the assembly lines of relatively simple products. However, there is much more to these zones than sewing dolls' clothing and assembling toys. Some industries can be quite sophisticated and complex.

But while opened up to the exterior they are not opened *vis a vis* the rest of the country. Chinese citizens need special permits to enter the zones and foreigners have to show passports. Given the economic boom of the SEZs it is conceivable that an open border could create an unmanageable migratory inflow.

In addition to the SEZ's, some coastal cities (like Guangzhou) are beginning to acquire a similar status, enjoying privileges along the same lines. As a further step towards opening up the economy, joint ventures are also being encouraged to be established even in cities like Beijing.

B. Chinese enterprises

To understand some of the new entrepreneurial developments in China it is necessary to review the most common types of firms that operate in the country. Traditionally, the most common type are the *State Owned Enterprises*. These are the typical enterprises of socialist countries, being owned and operated by the State. The *Collective Enterprises* are a variation of these, being owned by collectives or groups usually organized at the local level.

Different levels of government or different public agencies (such as banks, ministries, municipalities or provincial governments) may join efforts to create the so-called *Internal Joint Ventures*. These, however, are not as numerous as the regular State-owned enterprises.

But whenever joint ventures are mentioned, the usual meaning is an investment jointly made by Chinese and foreign partners. These *Foreign Joint Ventures* are the most important piece in the Chinese strategy to bring in foreign capital, know-how and training. A variation of this format is the *Service Joint Venture* in which the participation of the foreign partner is in the form of services or know-how. These firms are much less numerous than the regular joint ventures.

Even more numerous than the joint ventures are the *Processing Industries*. These are not considered by the Chinese as joint ventures as all the equity is foreign. They typically import all raw materials from Hong Kong and are subsidiaries of Hong Kong enterprises that prefer to do their manufacturing in China, due to lower labour costs. What is peculiar about them is that all equity and management are foreign. Labour is provided by a Chinese service company that is formed, just to provide the enterprise with workers. This Chinese firm also builds the facilities and rents them to the foreign entrepreneurs. The juridical structure and the nature of these Chinese service firms is very complex and difficult to understand. However, it seems that those organized in rural areas tend to generate a large surplus that accrue to a new class of rural "capitalists". More strict regulations seem to prevent the same from happening in the urban versions of this "manpower" enterprise. Different authors seem to confirm this greater distance between rural areas and Chinese administrations. Both in terms of support and fiscalization, rural areas seem to be much more on their own.

As a result of the new economic regulations, the equivalent of private enterprises can operate in China. Large industrial private firms are still rare in the country but urban retail commerce is going progressively to the hands of private operators, particularly in the South. It seems that family-owned agricultural exploitation has completely taken over rural China, replacing the collective organizations that turned out not to be very productive.

C. The commodity economy

This is not the place to elaborate on the nature of Chinese economic plans and strategies. The more general tendency, however, is to define some sectors of the economy that are to rely on market forces to generate economic signals and let adjustments be made in response to these signals. In many ways, some segments of the economy are becoming more and more ruled by market forces. But the overall steering of the economy, as well as the investment policies, remain planned.

Such a broadly defined blueprint leaves much space for *ad hoc* decisions and improvisation. It also leaves much room for blurred policies and fuzziness, a feature that pervades the Chinese style of policy making (This is not always bad, as a lot of sound pragmatism can be deployed when rules are unclear or contradictory).

The trend that seems to prevail is a progressive spread of market mechanisms. This means that both an increasingly larger share of the enterprises is subjected to more market-like rules and that more dimensions of economic life are ruled by market incentives and competitiveness.

Two comments seem warranted here. First, nobody knows how widespread the use of market mechanisms will become. One cannot just extrapolate present trends and conclude that China will become a market economy. Second, the transition so far observed is far from smooth. The market pricing system introduces powerful incentives. When combined with prices or regulations generated in the old system, the results can be doubtful.

The increased presence of foreign trade means closer contacts with international and heavily competitive pricing systems. The increased consumption of imported raw materials and intermediate products anchors the costing procedures better. And more importantly, the international prices for Chinese exports grounds the cost/revenues equation of firms.

Another obvious consequence of the new commodity economy is that inefficiency is to be punished, *in extremis*, with bankruptcy. This is another, more radical, way of saying that economic calculus is being introduced and is becoming more preponderant. Poor economic behaviour, if not corrected, will lead to the disappearance of the enterprise. In fact, a few joint ventures have already experienced such a fate and even State enterprises are now threatened with extinction if performance is economically inadequate.

D. Labour market developments

Under the traditional ways, labour was allocated to firms by the Labour Bureau, according to their needs, as perceived by this public agency. It is a known fact that such appraisals of need have been influenced by labour supply, inflating the staffing of firms when more workers had to be placed. This is one of the classical features of socialist countries. This has been one of the common policies to eliminate unemployment. Such socially inspired allocations indeed can absorb excess labour, albeit at the cost of burdening firms with workers they do not need, increased labour costs and lowered productivity due to the poor work environment created.

The new commodity economy gives greater freedom to firms to decide what their needs are. These new policies apply, in principle, to all firms but those with foreign investment have capitalized on them to a much greater extent. Since they have been more recently created they do not have the accumulated excess labour of past years. Also, the influence of foreign investment imposes more rapid changes in management styles that lead to leaner labour staffing.

At present, one of the main roles of the Labour Bureau (or its local counterparts) is to locate workers with the skill profiles specified by the firms. For younger and less experienced workers, the recruiting grounds of the Bureau are schools or unemployed workers. This, of course, does not work when higher skills are needed. These workers will have to be found in other enterprises. Workers with skills less than fully utilized in their present employment are the easiest cases to deal with. Employers are less reluctant to let them go or, in any case, are less able to justify their permanence. Those that play more important roles in their firms constitute a more delicate case. Firms are entitled to flatly deny their release. Yet, the Bureau has some political leverage, being a permanent presence in their lives. Hence, firms probably see a political cost in saying no too frequently. This role of arbitration and conciliation between two firms that want the same worker seems very complex and unclear to us.

Progressively, more aggressive firms have began to use advertising as a means to attract the labour they need, as well as to resort to their present employees as an informal network to locate workers. Under some circumstances, workers from other enterprises present themselves to firms that are offering more advantageous working conditions.

But still, the Labour Bureau has to intervene in the case of workers employed by other firms. The negotiation for the transfer has to be done by the Labour Bureau. In other words, the roles of the Labour Bureau are progressively not as encompassing but, thus far, less than redundant.

Firms that have no revenues in local currency and branch offices of foreign companies (such as airline offices) are not allowed to contract out and pay workers directly. In this case, the Labour Bureau functions as a "temporary manpower bureau". They hire the labour as requested and supply it to firms, charging a service fee.

E. Labour contracts

Traditionally, all workers were bound to the so-called "iron rice bowl" system by which they had lifetime tenure in the firm. More than that, it was expected that sons were to succeed fathers in their jobs.

In the last few years a system of contracts has begun to replace the old system of permanent workers. Joint ventures, created more recently with greater flexibility, have pioneered the use of contract work. But the pattern is not black and white. Some joint ventures may have to offer permanent contracts to attract more experienced workers (who already have permanent contracts in state enterprises).

By the same token, State enterprises have begun to offer shorter contracts to their younger workers, particularly when dealing with youth who face stiff competition in the labour market.

Those changes have evolved much faster in the Guangdong Province and in the SEZ's than in areas in which foreign capital is less prevalent. In other words, one can see joint ventures offering some permanent contracts in the North and State firms only offering shorter term contracts in the South.

The content of contracts and conditions for dismissal and resignation differ from case to case. There does not seem to be all-encompassing legislation imposing basic conditions for the contracts. The general trend is to make contracts less binding and severance easier. In some cases, workers can leave almost freely giving one month's notice. But the most important effect is that it tends to make it much easier for employers to get rid of employees that are considered less than adequate. Dismissals are possible and indeed take place with much greater frequency. But even more prevalent seem to be veiled pressures for workers to resign when employers are not satisfied with their performance.

The law permits contracts of any duration. We found examples of contracts ranging from one to 20 years. Nevertheless, we observed that five years is the most common duration.

In addition to the contract workers, there is also a category of casual employees. These have practically no rights. Also, firms may hire youth on probation contracts, at the end of which they decide whether to hire them or not. Hardly any rights protect these workers while on probation.

F. Pay scales in China

One of the most formidable challenges to foreign investors is to understand the wage system in China. Several managers interviewed failed to explain the meaning of some of the multiple transfers between enterprises and government. Payments to workers must include items such as staple food subsidies, non-staple food subsidies, seniority pay, skill pay, responsibility pay, bonus, subsidies for rent and compensation for inflation. Non-monetary payments include food at the cafeteria, free lodging, health services and more. Government transfers include unemployment levies, union fees, retirement plans etc. In addition, urban workers receive food coupons directly from the Government, independent of their employment status.

When joint ventures sign their contracts with the Government the minimum pay scales are agreed upon. Normally it is expected that they should pay more than State enterprises operating in the same economic sector. A minimum of 20% additional pay (as compared to state enterprises in the same sector) is required from them. But in many cases they pay much more than that.

G. Visiting successful enterprises in China

The mission from which this paper originated visited 15 firms. Two were entirely Chinese. Eleven of them were joint ventures or foreign owned and two were processing industries.

These were among the most profitable, better managed and larger enterprises around. In fact, several of them were rated among the firms considered by the Chinese authorities as the ten best joint ventures. Therefore, this set of enterprises is a far cry from a random sample of joint ventures. Interpretation of the data has to take this into account. However, the State firms seemed also to have a good reputation, derived from good export performance or sophisticated equipment.

It stands to reason that they under-represent the shortcomings of the average enterprises and over-represent their positive achievements. On the other hand, it is likely that whatever limitations found could present themselves in an aggravated form in those that we did not visit.

An important distinction should be mentioned here. Joint ventures seem to be enterprises that receive considerable attention from the Chinese Government and much is expected of them in terms of learning about foreign practices in management, transfer of technology and training. But these firms are less numerous and generate a lot less employment than the "processing enterprises" situated close to Hong Kong. The latter concentrate on the assembly of toys, electronic products and garments, mostly from imported raw materials. The Chinese expect little of them, apart from generating exports and employment.

The Western press has given considerable space to abuses and "sweat-shop" practices in the foreign-owned enterprises. From all we know, these abuses originate in the processing industries, not the joint ventures that are much more closely followed up by Chinese authorities and much less likely to indulge in such practices.

1. Producing Electric Motors the Chinese Way

Nothing is more international than an electric motor. But nothing could be more Chinese than a Beijing State factory that produces motors, from casting carcasses to the last finishing touches. The buildings are the plain, non-descript functional architecture that can be seen all over Beijing - and the other few cities that we visited. They will never fall or require much in terms of maintenance but one should not expect much esthetic value in them. Yet, in the entrance hall we find a few dozen vases of chrysanthemus, standing one beside the other, presenting a most unexpected contrast to the barren industrial environment.

Outside, there are some touches that one would not expect to find in electro-mechanical factories. Between buildings the paths are surrounded by somewhat faded gardens and the cast iron low fences that separate the gardens have deer and panda bears as motifs. Some enterprising foundry worker must have created them. In addition to the ubiquitous perforated rocks that decorate many public areas in China, there are little lakes with porcelain cranes. Waste paper is collected in stark yellow porcelain elephants that stand with their mouths open, ready to receive the trash. To top it all, there is a garden with little pagodas and lakes.

On the shop floor it is all plain factory style. Not very clean, but no more messy than many industries of this kind (foundries are not known as very clean places). The equipment is conventional for this type of industry. The lathes and mills are old and not very sophisticated. A few semi-automatic machines are used in more repetitive operations but the CNC age still has not come, although some thought is already being given to training workers in automated processes.

Some conveyor belts were installed in the area in which the wiring of the motors is done. But surprisingly, they were not in use, for some reason. More than likely, they were not justified, given the inevitably slow procedures of fitting coils in very narrow slots.

It was striking that many workers were just sitting and doing nothing; maybe as much as 20 per cent of the workshop labour force. Two explanations were given. Shortage of electricity in the Beijing industrial areas was the justification for the paralysis of an entire set of very heavy lathes and milling machines fed by simple mechanical manipulators. Lack of raw materials was the other reason proffered.

Despite these shortcomings, nothing seems to be wrong with the factory. This is the equipment necessary for producing motors with inexpensive labour. Quality is claimed to be very high (they recently obtained a silver medal in an industrial exhibition) and the fact that 20 per cent of production can be exported confirms this statement. Heavy motors of low quality have no chance in international markets, no matter how inexpensive they may be.

The factory has 3 700 workers. From the 700 in the higher ranks 318 are engineers and technicians. About 2 200 are production workers and the remaining do menial services.

The earth-shattering changes that are taking place in the Special Economic Zones and in the South do not find a parallel in a State factory in Beijing. Yet, the recent opening up of the economy did not fail to produce some changes in the firm.

Dismissing permanent workers remains a formidable hurdle in Chinese society. Only breach of discipline is sufficient cause and we all know that the most undesirable workers are slippery creatures that hardly ever get caught in such black and white situations. Only three workers were dismissed this way. Other solutions had to be sought.

The creation of work brigades was a clever but elusive step. All work is now done by brigades directed by a leader chosen by the management. What is the magic in these brigades? They created higher motivation among the waiters in the cafeteria. So what? Smiling waiters make a very modest contribution to productivity on the shop floor. But the idea is more subtle. Brigades have a fixed size and the leader decides who is to be part of them. Therefore, some workers were left out and it stands to reason that these are the least desirable ones. Not having a definite task, these 100 workers stay home, only coming to the factory twice a month to check if there is something for them to do. While they are still a financial liability to the firm, the workshops get rid of the dead wood. Furthermore, the threat of being put in this virtual "garbage can" probably acts as a potent sanction that the "iron rice bowl system" did not provide.

Anyway, in the past few years the factory has been able, to shed 280 workers (100 are at home in this limbo situation and the remainder probably result from non replacement of workers who retired or left for some reason). Considering the chronic problems of excess labour in communist countries this is indeed a good sign.

Yet, some of the other traditional problems of State enterprises remain. Salary differentials are inadequate to attract the workers they would like to have. Heavy industry is not reputed to offer the most pleasant jobs. In addition, they are poached by the joint ventures that exhibit much greater freedom in determining maximum salaries. Equally serious is the lack of sufficient incentives for adult workers to take further training. Courses require added effort and may lead to higher positions of responsibility that are not rewarded at a level sufficient to overcome the additional efforts.

Like most State firms, they get almost all of their labour by recruiting young workers. The 30 openings per year they have for technicians are being filled with graduates of secondary schools who are taking custom-made courses in a local technical school. Given what they see coming in the next wave of equipment, these programmes emphasize computer and related skills. Such contracts with technical schools are a very typical pattern for technical and vocational training in China. State firms have to spend 1.5% of their pay-roll on training and they often use these resources to contract out the preparation of their labour to training institutions.

In contrast, the skilled workers are trained in a programme operated inside the firm. By means of an open competition they select the best junior high school graduates they can find. The 70 students that yearly join their training centre spend five semesters taking theoretical courses as well as time in practice workshops. The classroom disciplines are Chinese, mathematics, drafting and technological subjects. In addition, they get to play with Chinese Apple IIs, doing BASIC and FORTRAN. The main trades offered are machinist and electrician. The sixth semester is an internship in one of the "real" workshops of the factory.

Managers are happy with their training centre. It has modest premises but it seems to perform what is expected. Even a quick visit to the installations reveal some quaint details such as curtains made of flowery material protecting the books in the small library and the carefully tailored covers for the computers.

This factory is probably a good sample of the older generation of Chinese factories, with its high and low points. They witness the new developments with growing discomfort. They suffer the rigidities of the "ancien regime", incapable of bidding for the top workers and motivating the work force. And the uncertainties of the new open personnel policies do not tempt them too much. They still see the more flashy joint ventures as low status operations. Asked point blank if he would trade his position for a 50 per cent additional salary and the consequent 5 year contract one of the managers backed off. "I am too old for that" he claimed. Yet, his son still holds the values of the father as he used his engineering degree to bid for a permanent position in a state firm.

But the two Chinas are there. Upon visiting one exhibit on safety standards we saw a photograph of Mao Dse Dong and Chou En Lai amidst a crowd of workers showing discrete signs of darkroom doctoring, Yet, upon entering a classroom. a well-engineered ball from one of the student´s bubble gum just popped.

2. Public firms catering to private vices:

The Cigarette Factory

Should a socialist country that tries to cater to the well-being of its citizens invest hard currency to produce something that is harmful to one's health? This question lingered in the back of our minds as we strolled through a brand new cigarette factory. But that, of course, is not the kind of question we were expected to address.

This factory is one of the two purely domestic enterprises that we visited. Inevitably, it stands as a benchmark for comparisons with the more numerous joint ventures we examined. We have ample evidence to show that we were offered some of the most successful joint ventures to visit. By the same token, it is unlikely that the Chinese authorities would choose what they considered poor performers on the public side of the sample. That gives a minimal level of comparability between the two main formats of operating enterprises in China.

To be more precise, this firm is what is called in China an internal joint venture, as it has different branches of the public administration as partners. In this case, it is the Provincial Government and a big State enterprise that produces cigarettes, sugar and wine. It started very modestly in 1983 as a facility meant to supply the local market with cigarettes. However, in 1987 they built the present factory which is very large, employing 296 workers.

The tour of the factory premises gives some first hand impressions. This is a very spacious factory. It sports gardens, a swimming pool and an intricate pattern of pathways and stairs, so much to the Chinese taste but not at all functional as an industrial layout. From the window of the meeting room we could see many empty rooms and others that were being used for cultural activities.

The factory is divided into two clearly different stages of production. The first is the tobacco treatment station. This is a huge and totally automated set of ovens, screening, chopping and mixing facilities connected by conveyor belts. The entire set is Italian made and, to a layman, looks very imposing. As far as we could tell, this is something that seems to proceed at its own pace, without much interference from workers.

The second part is the rolling of cigarettes and the packaging of the final product. From a very superficial examination, it seems that there are some problems there. The equipment is rebuilt - or at least some of the machines are, as one can read the nameplates of the firm that did the rebuilding. In addition, it is a collection of very different machines doing the same job. Why would a new factory have different vintages and models of machines that ultimately do the same job of rolling and packaging cigarettes?

Maybe about one fourth of the machines were undergoing maintenance. This is far too much down time for equipment recently purchased and relatively conventional. Did we visit the factory at a bad moment? There were machinists climbing all over the machines and plenty of defective cigarettes thrown on the floor, even around those machines that were operating. Without being experts in that type of equipment, it seems that while they can be very critical to adjust, one should not expect such high rates of losses and foregone production.

The factory has 46 employees in management and staffing positions and 222 production workers. The remaining perform janitorial services or are teachers.

Twenty employees have college level education and 18 have vocational secondary diplomas (chemistry and mechanics). In addition, there are 18 with technical secondary education, 191 with high school diplomas and 67 at the junior high school level.

The enterprise has a very credible training programme. It planned to spend 20 000 Yuan on training in 1988 (1 US dollar equals 3.9 Yuan).

It has already trained 23 supervisors in management techniques by means of 2-3 month courses. Middle-level skills training has been offered to 20 workers. Some of them were sent to other cigarette factories for internships. Special training has been offered to 20 boiler and electricity workers. In addition to this, one-month programmes on quality control have been offered to all workers.

All in all, this is a very respectable training and education profile for such a factory. Let us not forget that most occupations are relatively simple in a factory operating with fixed automation. In contrast, some occupations are extremely critical in such factories, like maintenance and fine tuning the machines.

In line with the new styles of the SEZs all workers are on five year contracts. This is a sharp difference with respect to factories located in other regions where even the joint ventures have to offer permanent contracts to entice more experienced workers.

Average wages are 320 Yuan and the lowest are 300 Yuan. This is reasonably high for Shenzhen, a city plagued by an overheated

labour market. At any rate, it is higher than wages in comparable State enterprises. It should be noted that these are wage levels that prevail in the SEZs. They are several times higher than those of other cities and so is the cost of living.

The maximum wages are 380 Yuan. The difference between maximum and minimum - the spread of wages - is extremely narrow. The managers acknowledged this narrow spread as a problem in a factory utilizing advanced technology. Our own observation from the workshop suggested the need to have first calibre and fast working trouble-shooters adjusting the automated cigarette machines. Supposing that they are not the people at the 380 Yen level (these would be supervisors and managers), the difference between an easy-going job and the most critical positions in the factory would be the equivalent of one or two meals in a moderately priced restaurant. Such small differences may be one of the most persistent problems with State enterprises. How to motivate workers to take initiative, to assume responsibilities or to take further training if the material rewards are so narrow?

Managers claimed that state firms do not have the autonomy required to increase this spread. There may very well be an administrative impediment in this respect. We have no reason to question the word of these managers. Nevertheless, there is more than that. Several years of egalitarianism have left their mark. Increasing the spread is tantamount to increasing inequality and this is felt as unknown and dangerous territory. As far as we know, it is not stated anywhere that it is not to be done. In fact, the opposite is closer to the truth. Chairman Deng Xiaoping said it himself: "Egalitarianism will lead us nowhere". Yet, taboos do not dissolve rapidly.

Last but not least, the smoking members of our group were offered some cartons of the cigarettes produced by this factory and liked them very much. In fact, they even purchased them afterwards.

3. Car business with big business

This enterprise is a representative sample of a joint venture between a traditional Chinese automotive firm and a foreign multinational. The Chinese firm seems very Chinese indeed, in the heart of an industrial area. In contrast, nothing is more typically multinational than the prestigious foreign partner.

The Chinese found themselves producing obsolete vehicles. At the same time, this alert automotive multinational could not fail to notice the obvious needs to transport one billion people across the third largest country in the world. In this case, foreign money was not the number one priority for the Chinese. In fact, foreign

capital is only 14 per cent of the total and probably not all of it is direct financial disbursements. Nevertheless, the US$52 million of foreign investment is not negligible.

In contrast, the foreign partner transfers all the technology of their traditional vehicle to the Chinese. All parts are already locally built. In fact, the Chinese are not beginners in this area, having been building motor vehicles for many years, including the predecessor to this factory that produced light trucks - more than likely from Russian blueprints.

The assembly line is traditional, i.e. adequate to produce 26 000 vehicles per year. This modest level of output is no longer economical in industrialized countries but it makes sense in low labour cost situations. The common assembly line fixtures are there, rigs are used extensively and the critical welding operations are performed with the help of simple versions of fixed automation (rigs that line up the heavy panels and weld them).

The second vehicle produced is a newcomer to the assembly line. For the time being, all parts - for the 6 000 units produced yearly - are imported. Being a new assembly line, it is somewhat more sophisticated than the other.

All in all - to my semi-educated eyes - it seems a decent factory. It is reasonably orderly and clean. But spotless it is not. There are parts strewn around here and there, a few of them broken due to careless handling. Compared to the Brazilian Ford plant I visited recently it rates poorly. But nevertheless, the general impression is favourable. They claim to be able to save 25 per cent of the costs of importing ready-made vehicles. Considering that labour weighs very little in the fully automated automobile factories (as little as 6 per cent in the latest Japanese factories) this can be considered a good result, despite the fact that labour costs add up to about 20 per cent of the price of their cars.

In fact, the factory employs many people. A labour force of 4 300 workers is very high for producing a little more than 30 000 vehicles. Could they employ less workers? This is a very important but difficult question. To use cheap labour is to use what China has plenty of. It makes all the sense in the world. But using more labour than necessary - given the capital available - has been shown to be a bad way to generate employment. This is the endemic disease that plagues all socialist countries.

The structure of employment shows:

1 500	production workers
1 600	workers in transportation and similar tasks
500	engineers and technicians
600	administrative personnel
60	janitorial employees

In a factory of such a complex nature the size of the administrative staff seems somewhat small compared to similar industries in other countries. Or maybe, they have too many factory personnel (instead of too few service workers). Indeed, while one sees modern assembly-line technology inside the buildings, on the outside, horse drawn carts, bicycles with trailers, wheelbarrows and the equally traditional human shoulder are used to transport everything.

Have the foreign managers pondered over the cost-benefit ratios of using horses in an automobile factory? It does not seem to be the case. From all that I could see, this is not a Chinese-foreign factory. It is mostly a Chinese factory that produces a vehicle designed by foreigners.

There are at present only eight foreigners working in the factory. In addition, every year headquarters sends about one hundred consulting missions of varying dura-

tion. More than likely, these consultants parachuted into an all-Chinese factory, never really went beyond the technicalities of producing a sound vehicle. In other words, they are concerned with the quality of the product first, with production techniques second and with the organization of production third, if at all.

This factory operated with 3 700 workers before the creation of the joint venture in 1983. Clearly, by then all routines and organizational structures were already established. If the workers today have an average age of 39 years, four years ago when the joint venture began, they were already mature workers and had their own work styles. Eight foreigners - or many more - could never significantly change them, for good or for evil.

Nevertheless, the arrival of the joint venture, coincides with the new labour legislation in which workers may see their lifetime tenure exchanged for limited duration contracts.. This is the breaking down of the famous "iron rice bowl", where a worker only leaves his firm to retire.

In other words, it seems that while the foreign partners have only had minor interference in the way the firm is organized and run, the fact of becoming a joint venture more quickly rids the firm of the constraining legislation that ruled labour relations.

Prudently, when changing the status of the existing workers, a contract of 20 years was offered. This is tantamount to changing nothing, since after 20 years, 32 years old workers will retire regardless of contract.

But for the new workers the change is real. They receive a five year contract. In addition, the new management styles bring dismissals, which were not - de facto - possible before (except in rare cases of breach of discipline). Already 40 to 50 are being dismissed every year. This is an earth-shattering change. But in exchange, all salaries are higher by 50 per cent, compared to other automotive firms in the area.

Since the factory has being growing, new workers have been hired. About 100 per year are being recruited or, should we say, poached, from other factories in the region. Another hundred came from universities and colleges. The remaining 500 or so came straight from high school.

The factory is not happy with the kind of technical skills they are getting from the State schools, be they vocational or technical. What they learn is too general, complains the personnel manager. In addition, they know nothing about cars.

Partly to remedy these weaknesses they offer new entrants a 3 to 6 month course. They also commission custom-made courses from vocational and technical schools that exactly correspond to their needs.

On both counts they are doing very much what other industries not at all related to foreign firms have been doing all the time. They promote their own short courses and contract others with local schools.

What they do that State firms do not is to send workers abroad. Since the signing of the joint venture, 159 have gone abroad. In four of those cases, the workers were sent to the training institute operated by the firm. In the others, they went to the headquarters of the foreign partner to learn about critical areas of car manufacturing like purchasing from outside suppliers and quality control.

Let us recapitulate their human resource situation. Having foreign partners gave them the instant right to poach labour from other factories, i.e., to get for free the cost of training done and paid for by others (neo-classical economists may want to query who

pays for what). In addition, they do their own training and pay for it, like everybody else. What they also do that others do not is to send some trainees abroad. While they use for that purpose funds that have to be allocated for training, they overrun that budget. Indeed, headquarters donated 5 million Yuan of revenues (after taxes) for training. But more importantly, access to internships at the headquarters of firms like this are unique experiences.

All in all, in addition to acquiring access to a most valuable source of technological and management experience, it is a fact that they obtain the important privilege of being able to poach from the labour forces of other firms. But it is not at all clear that in the strict field of training China is getting the best possible deal. At the same time that they receive relatively little at the technological and management level, beyond the license to use a good product, it seems that they are not getting as much training as they could. In other words, their partnership with a highly competent firm may remain underexploited in the area of training.

. This is an issue which turned out to be very difficult to understand. Nowadays it seems that all firms, foreign and domestic, can operate under the new labour legislation. Yet, the older State firms seem much slower to change. It is not clear whether this is a case of the legal ambiguities or cultural barriers inside the firms.

4. Making automobiles the European way

We left the hotel leading towards the new industrial complex where a European firm associated with the Chinese to produce their automobiles. The road is narrow and the traffic intense. The pavement is in bad state of repair. Reconstruction all along the way blocks the traffic even more. At all times we are surrounded by bicycles and find it highly unlikely that a collision with one of them will not take place before the end of the trip. More voluminous and less mobile are the ubiquitous diesel mini-tractors that cart enormous loads of food or construction materials at excruciatingly slow speeds.

Caught in the middle of a traffic jam, the thought that we are going to visit a factory that is adding vehicles to this overburdened network of roads seems somewhat absurd. If the bicycles and tractors already slow traffic down to what seems one tenth of the mean speed observed in industrialized countries, one can just imagine what is going to happen when individual automobiles arrive on the streets in great numbers.

However, the Chinese are going ahead at full speed after a consumption model that follows Western styles very closely. And automobiles seem to be an integral part of this package. Hence, they are going to have to invest heavily in road construction. But if this is the way they want it, then it is better they make their own modern automobiles than import Japanese limousines or copy old Russian models which were already obsolete when they were copied from the West.

With these thoughts in mind we finally arrived at the factory. This joint venture originated from a twenty-year old bus factory which associated in 1985 with a European manufacturer and a foreign bank to produce passenger automobiles. The Municipality contributes 46 per cent of the capital, the European firm 22 per cent, a Chinese national trust 20 per cent, the International Finance Corporation 8 per cent and the foreign bank 4 per cent.

The joint venture produces 8 000 vehicles per year at present but plans a very significant expansion in the coming years, leading to several times this output. Import substitution of components is one of the most immediate goals of the firm. They now deploy 70 engineers to implement the production of parts by local suppliers. One of the models already has about 60 per cent of local components.

The assembly line, located in the older premises of the bus factory is modern and clean looking. The layout of the machines is correct and the factory is orderly and neat. In fact, it looks much better managed than the other car factory. There are no parts falling from torn cartons or strewn on the ground. The floor is clean and devoid of industrial rubble. It gives much less a sense of improvisation and makeshift solutions.

On the other hand, it is a strictly conventional assembly line. There are no robots, no computer-controlled procedures or other typical high tech pieces of hardware.

At present, 1 600 workers are deployed in the factory. Only 30 were retained from the 2 600 that were employed by the bus factory (which still operates in a contiguous set of buildings). Seven hundred workers were recruited from other local industries. The remaining were recruited directly from schools.

It is interesting to note that despite the fact that the joint venture is recent and, therefore, could benefit from the possibility of passing shorter contracts to all its employees, it has 800 permanent workers. What this means is that it probably needed highly skilled workers in a region in which they are not plentiful. To take them away from State firms in which they had permanent contracts required offering equivalent conditions.

By the same token, the 31 workshop directors and managers also have permanent contracts. Firms that need very few highly skilled workers and managers can afford to pay them the large salaries that are required to attract them without permanent contracts. But a firm like this, that needs such vast numbers of highly skilled workers can hardly afford to do the same and prefers to offer permanent contracts.

This is a common feature of the Chinese labour market. Older workers fear instability and do not want the uncertainty of a contract. If their skills are in great demand they can successfully bargain for it.

The wages paid by this firm are on average 20 per cent higher than in comparable firms in the same region. Maximum wages are 500 Yuan , minimum are 130 Yuan and the mean is 230 Yuan.

According to the outspoken European manager, the problem is not so much the level of the wages but the spread that is insufficient to motivate the best workers to take on responsibilities. He would like to pay much more to his best workers but meets considerable opposition from his Board of Directors of whom the majority are Chinese and do not favour greater inequality in wages.

Moreover, the structure of pay is so complex and full of unavoidable components that the wage differentials between the most and the least dedicated workers is insufficient to create enough of a motivation. A conventional Western job classification is simply not possible in China, due to the maze of legally mandated components that already take up almost all of the wages.

Chinese workers coming from State enterprises are not used to working the eight hours a day for which they are hired and paid. The manager would like them to work at least six or seven hours, instead of always arriving late, spending too much time in the restaurant and leaving before time. Predictably, workers resent the pressures put on them to work harder.

Youth is attracted to factories like these by the charm of technology and the West. But older workers do not think likewise and in order to obtain their skills and expertise factories end up with a system that reproduces much of the weaknesses of state enterprises. The conservatism of the Boards prevents greater financial rewards from being offered. Furthermore, state firms do not permit some of their good workers to leave and without this authorization they are forced to stay. The manager thinks that these are some of the main reasons why some joint ventures meet with little success. (According to government sources, 20 per cent of them are in difficulty, but according to this manager half of them are unsuccessful.)

The end result, according to him, is productivity that is one third of that of workers in Taiwan, China.

The firm has been spending about 200 000 Yuan per year on the training of its workers. Many workers have been trained in Europe and 30 technicians have come from Europe to train the local staff. They are planning to create a training centre to train about 300 of their skilled workers. But this project has met the resistance of the Board of Directors that does not see such high expenditures on training as justified.

The quality of the training imparted by the local vocational schools is considered to be quite inadequate. Too much coming out of books and little, if any, hands-on activities. The manager indicated that a graduate of one of these institutions will perform like a European worker but with three years of schooling less. Often, engineers can only be employed as draftsmen.

Bringing workers from Europe has been proposed as an alternative. But this was not acceptable to the Board.

This enterprise is the most extreme case we found. Given the nature of its product, the quality of labour is the most critical constraint.

Some years ago, it was thought that automobiles would have the same fate as textiles, shoes and other simple consumer products. Their production would be moved to the semi-industrialized countries. This, however, failed to materialize. Automobile production remains in the hands of the countries where labour is the most expensive and best qualified. Some of the most advanced NIC's, like Brazil and Korea may have a modest share of this market and the others will remain consumers. At best, they could buy CKD kits (Completely Knocked Down) and assemble them with slight savings in labour, if any.

As it turns out, automobiles are very complex products, require over 10 000 parts to be assembled and tend to be produced with little vertical integration. In fact, automobile factories hardly produce any parts at all; they merely assemble what others have produced. Quality control is particularly critical, competition is stiff and consumers are conscious of shortcomings. Furthermore, the cost of keeping an inventory is extraordinarily high and the optimal size of a factory requires a yearly production way above 100 000 to be economically justified.

All these factors demand exactly what developing countries do not have. Above all, they require a highly sophisticated labour force and complex management. And it also needs almost equivalent features from the complex network of suppliers. One of the key concepts in modern automobile factories is the Kan-Ban (or Just-in-time) method which allows reductions in inventories to a level permitting operation for just a few hours without replenishment.

For these same reasons, automobile production is one of the industries that bring greater impact and maturity to the industrial development of a country. Having 70 engineers working with suppliers of parts is most eloquent evidence of this beneficial impact.

But it also puts in evidence the shortcomings of industrial organization and training. Kan-Ban was not a familiar concept in the first car factory and we never heard anything about it at this one.

Reducing down time in the assembly line was recognized by the management as one of the critical problems. The slightest of problems brings the entire assembly line to a halt, paralysing several dozen workers. In fact, their proposal to bring European workers (at a cost at least 20 times higher than the Chinese counterparts) confirms the seriousness of this problem.

More evidence of the difficulties - and benefits - of operating such a factory is that nowhere else during our visits did we find greater signs of conflict between foreign management and local labour. Disagreements with the Chinese Board of Directors on training and wage policies seemed frequent. Workers resented the pressure put on them to produce more and have on occasion reacted by lowering production to a minimum.

This is the factory where the shock between the two cultures was most acute. In fact, it is one of the few factories in which Western managers interact directly with local workers and supervisors (in the majority of the firms visited managers are from Hong Kong, being therefore ethnic Chinese). The efforts to break down the barriers imposed by differences in industrial cultures need therefore to be much greater. Both sides have to try very hard to forget their origins, so we were told.

One practical and very concrete lesson learnt from this factory is the need to have an initial contract that is less open and vague. It is neither practical nor desirable to sign a contract that tries to predict everything, thereby becoming a straight-jacket. But in this case, we saw that some items like training and wage policies were left too vague in the contract and are now a source of disagreement.

5. Speak English, work hard and make money:

Innkeeping lessons from Singapore

Impeccably dressed and utterly Austrian, the general manager came straight to the point: "This hotel is here to make money. In order to succeed the Chinese need to work much harder, keep working rigorous hours, take less medical leave and have better work discipline. This hotel can charge high prices and get away with it because we have a good name. And that is only because we offer better service than our competitors."

His Austrian compatriot, Joseph Schumpeter, could not have done better. The infusion of such unadulterated capitalistic spirit seems to be what some Chinese want out of joint ventures with foreign enterprises. Well, those Chinese claiming that "time is money and efficiency is life" are surely getting much of it in this hotel.

Singapore has excelled in the hotel business, boasting one of the best hotel industries in the world and being famous for the quality of the services provided. It may be said that - together with Hong Kong - they have revived a Chinese tradition of sophistication in personal services that has been hibernating in China for many decades.

A most peculiar situation prevails in the kitchen. It is perfectly understandable that French and Italian chefs cannot be found in China and have to be imported. But they are bringing chefs from Hong Kong to do Cantonese cuisine! The reason is that a most refined Chinese cuisine has boomed in places like Hong Kong and Singapore. A Chinese hotel manager from Guangzhou confirmed that the Chinese cuisine of Hong Kong is better.

It is very natural that a Singapore-based hotel associates with the Chinese Government to operate a joint venture hotel. The Singaporean chain has invested US4 million and holds 49 per cent of the capital (the maximum that the Chinese allowed, in order to retain control of the business).

As the management concedes, the location is less than ideal, being too far from the downtown areas. The architecture is somewhat reminiscent of the styles of the 1970s, not at all memorable. Perhaps that is what customers want.

The hotel is fighting hard to approach the Singaporean standards of service. They candidly admit being below their own expectations. But they are doing better than the other hotels, so they claim. The other locally-owned hotels have even more problems with their services.

As customers of State hotels in China, we endorse this statement. Service is amateurish, light-hearted and casual. Partly it is the well known difficulty of running public enterprises in areas in which detail is important and control very difficult. But also, catering to seasoned and demanding Western customers is in itself a complex business. Both tourists and businessmen come to China with expectations pampered by centuries of European innkeeping tradition. This is typically an area in which one cannot improvise, guess or re-invent. The only way China can have world-class hotels is by bringing in those who know the business. No country has learned it otherwise.

Out of the 1 500 employees, they have 83 expatriates. These are essentially management and kitchen personnel that rotate among the different hotels of the chain. The remaining are Chinese. But they also rotate. Having opened in 1987 the hotel has already lost 300 employees. This is an enormous number by traditional Chinese standards. Some left to work in the newer hotels, particularly in the Special Economic Zones where the overheated economy has increased wages disproportionately.

The hotel pays a maximum wage that is three times higher than that of the lowest level. This is a much wider spread than in State enterprises. Yet, given the explosion in hotels - 20 000 new rooms to be offered in the Beijing market in the next few years - they cannot retain some of their skilled personnel. Government regulations do not prevent them from increasing the wages levels of the more skilled workers. But that certainly reduces profitability and the Board of Directors is reluctant to go along with that.

The other workers that have left are just not suited to the work and to the Austrian-Singaporean discipline of the establishment. These rigid requirements have already brought friction with workers. Some of the

women wanted the traditional Chinese rules to prevail, by which they can leave twice a day for nursing. That did not go with the ways of the hotel and some compromise solution had to be found.

It seems that by offering salaries that are on the average 50% higher than those of the State hotels they can find plenty of suitable candidates to learn innkeeping skills and sign five-year contracts.

But if the secret of success is service and if the local training institutions have very little to offer, training becomes one of their main concerns. They simply have to excel in training if they want to excel in innkeeping.

The use of expatriate workers and managers is one of the means to ensure the quality of the service. The 83 foreigners bear witness to the effort undertaken by the hotel. Notice that a Hong Kong cook earns US$ 1000, about 10 times more than his local assistant and an European earns US$ 2000, about 20 times higher. May be they can tolerate such enormous differences without undue problems . But it is just sound economic logic to think that the faster they train local replacements the more money they will save on the pay-roll.

Before the Hotel opened, they rented rooms and operated a training centre for one and a half years, taking recently graduated youth and training them from scratch. This programme has ceased to exist since inauguration.

All recruits are now trained in full-time regime for two months, before they ever begin to work. They have special training rooms where students learn about catering, how to serve guests and about their responsibilities. All trainees have to study the employer booklet carefully. The hotel prepared training materials similar to those the other local hotels were using. Girls take courses in make up because they are expected to look very sharp and elegant.

But the "leit-motif" of all training is the English language. In fact, this is a horrendous weakness of all the hotels we visited. Hotels with literally thousands of rooms may fail to have a single soul with an English vocabulary exceeding 100 words. By contrast, in this hotel all employees have to study English for three hours per week. In other words, the hotel now has 1500 students of English.

Restaurant kitchens have their own peculiarities in matters of training. This is an area in which apprenticeship is sovereign, just about anywhere in the world. Cooks have an iron-clad system of stratification and hierarchies. Progress from one level to the next follows strict principles. As expected, the hotel sticks to this tradition. But it was interesting to hear the Austrian manager - who apprenticed in the kitchen himself - report that due to the lack of skilled personnel the apprentices had to be given higher responsibilities much earlier than in Europe. As he explained, it has to be understood that being prematurely promoted, apprentices will burn the roast once in a while. But also, they learn faster. Instead of the usual three years of apprenticeship, they reached equivalent results in one and a half years. It is instructive to compare this experience with that of industrial enterprises settling in areas where qualified labour is not available and beginners have to be trained to do all the work. For the same reasons, individual development has also been observed to be faster than in mature regions.

Before they are promoted, higher ranking employees may go to internships in other hotels of the chain. They may go to Singapore or Thailand and work there from

three months to one year. Four employees were sent to the Disney University in Orlando (Florida) to study hotel management for a year.

All this training is paid by the hotel. If trainees decide to leave the hotel before expiration of the five-year contracts, they have to pay back 5000 Yuan (1 US$ equal 3.8 Yuan at the official rate) to partly compensate for the training costs. Five employers have already done so, in order to assume higher positions in newer hotels.

Hotels seem indeed to be an area in which training makes a difference. While some of the training is highly technical, there are mundane issues like training workers to smile. This is considered so important that a "Smiling Month Campaign" was about to begin. Yet, there are more elusive problems. Asked what was the greatest difficulty with staff, the answer was at the same time obvious and surprising. The hardest challenge for a Chinese employee is to understand Western customers. What goes on in their bizarre minds, how to decipher their strange ways of thinking and expressing ideas? The differences certainly go much beyond linguistic problems. And that much we found out ourselves, pathetically trying to be understood in China, notwithstanding the help of a competent interpreter.

6. Hong Kong Cooks to Teach Chinese Cuisine

There is more foreign investment in hotels than in any other single sector. Close to one third of all joint ventures are hotels. Some of the reasons for this are easy to understand. There is an enormous curiosity and interest in China and the liberalization of travel created much demand for accommodation. Furthermore, the opening up of investment possibilities in other sectors is also creating the need for much travel.

Given the long isolation of the country, hotel and catering practices failed to keep up with international standards. Asked about differences between locally run hotels and those belonging to international networks, a Chinese hotel manager told us: "Go see for yourself".

And check that statement we did. Not so much for intellectual curiosity as for practical contingencies of travel. The manager was right. Service in State-run hotels is pleasantly amateurish, but amateurish nonetheless. The youthful, numerous and merry staff giggle and laugh while blundering at every step. The ubiquitous tea hardly ever ends up only inside the cup. Everything that is to be poured spills on the table if not on the guest. On one occasion we could get coffee but no spoons to stir the sugar. Some hotels are built like stone fortresses and, in addition, dispose of the latest gadgetry to open doors electronically, dim reading lights and select channels on the colour TV. Yet, cleanliness in bathrooms is hit and miss. Carpets in luxuriously decorated rooms had holes burnt by cigarette butts.

Some hotels do not give keys to guests; one has to summon someone to open the door of your room. Restaurant, laundry and telephone bills cannot be charged to one central account. They have to be paid in cash, each at a different place. That should make the operation of paying the room very simple. Yet, this is a complicated affair, revealing a system of accounting that is completely outdated. Of course, not all State hotels have these problems, but they do occasionally arise.

In contrast, Hong Kong hotels are known for their efficiency, professionalism and courtesy. Nothing more natural, therefore than the transfer of this tradition to China.

A good example of this is a hotel, situated in Guangzhou (formerly Canton), a city that has fragments of all the Chinas in it. The streets and the markets reproduce our images of the old China, full of people and noise, bicycles and carts. The Republican and Communist China are both very much present there as both Sun Yat'sen and Mao Dse Dong had close roots in this region. But also, the new China of the Four Openings is conspicuously present in the booming industrial and construction development.

The Hotel is a joint venture between Hong Kong and the Guangdong government. According to the contract, in twenty years the entire enterprise will be turned over to China. Meanwhile, it is expected to be paid off and yield profits to its shareholders. According to the manager, results are satisfactory and since 1984 US$89 million have been repaid. They also claim that service is of a high quality, catering to a clientele predominantly (60 per cent) from Hong Kong.

Like most Chinese hotels, this is a very big institution. It has 1 017 rooms, 250 suites, 150 offices for rent and 230 taxis. About 3 000 people work there.

In this business, what really matters is the quality of service. Therefore, the qualifications of the staff are a most critical factor.

Following inauguration, 180 employees were expatriates. Yet, the incentives to use Chinese workers instead are very major as the lowest paid expatriates, those from Hong Kong, earn about ten times more. Presently, the number of expatriates has gone down to 80.

Expatriates are mostly in management positions, like services and the front desk. But they are also heavily concentrated in the kitchen. That European cooks be hired to prepare Western food stands to reason. But we see also Hong Kong cooks coming to China to do Chinese cuisine.

This is a very interesting phenomenon. Ultimately, a multinational enterprise brings foreign nationals to teach the Chinese how to do Chinese cooking. As a Chinese manager admitted, Hong Kong has a better cuisine than China. Surely, the basic techniques are there, practiced by hundreds of millions of housewives and cooks. But China lost the upper end of its culinary skills. The more sophisticated side of cooking got sidestepped by the turmoil and anti-bourgeois movements of the last decades. In contrast, Hong Kong preserved and expanded this tradition, thanks to the greater continuity of its history and to the importance of hotel and catering in that city.

In order to re-create this tradition in Guangzhou, the hotel had to go to great lengths to train its personnel. Of course, in areas like air conditioning and electricity, the workers came from State enterprises. But all the others have to receive appropriate training. The hotel spends about one million Yuan per year on training.

The typical training programme for supervisors and managers lasts eleven months, half of the time being spent on training and the other half working. They learn Psychology, Public Relations and other related subjects. After sixth months, trainees begin to specialize and take courses in more specific skills. At the end of the programme some trainees spend one month in Hong Kong. More than 250 employees have already completed this course of study.

But the hotel offers other courses for a wider range of employees. At present, 1 000 of them are studying, English being the number one subject (Japanese is also taught). Faculty from the local University teach these courses, as well as management disciplines.

Average wages are 280 Yuan. The maximum level for Chinese workers is 650 Yuan and the minimum is 160 Yuan. These are between 10 and 20 per cent higher than State hotels. The problem is that other more recently built hotels are constantly offering higher wages and better promotion prospects. Even whilst having to compensate for the costs of training, these newer establishments are willing to make very generous offers, due to the overheated labour market for hotel personnel.

In five years they have lost 1 500 employees. About 250 were dismissed for disciplinary reasons. The remaining were snatched away by competition.

In a philosophical vein, the Chinese manager spoke of their willingness to train staff for other hotels. Yet, it seems more a question of lack of choices than generosity or public spirit. As an older hotel, they operate a mature institution that can train many people without undue burden on their services. To train less, they would have to retain staff for a longer period. Given the prevailing explosion of wages, driven up by a vertiginous sequence of the opening of new institutions, they could not possibly keep up with them. Their only alternative is to train more and more.

7. Fixing cars, growing mushrooms, feeding people and operating a duty free shop: The multiple activities of a Zhuhai enterprise

The Zhuhai SEZ stands geographically to Macao just as Shenzhen stands to Hong Kong. Both were built contiguous to the borders of China with these two foreign territories. Yet, the similarity stops there, much to our surprise.

Shenzhen is becoming the shopfloor of Hong Kong. Industrious, well-disciplined Chinese do almost as much as well-disciplined and industrious Chinese from Hong Kong do, but for one tenth of the wages. Why not cross the border and manufacture cheaper in China?

The obvious hypothesis would be to predicate a similar role for Zhuhai *vis a vis* Macao. But this is not so. Industries are not at all complementary, there is little flow of workers either way and Macao is not a channel for Zhuhai exports. In fact, it does not have a port allowing ships above 10 000 tons to dock, nor does it have an airport allowing cargo freight.

Instead, Zhuhai is the younger brother of Shenzhen, following the same pattern of relationships with Hong Kong. All the exports go to Hong Kong and most raw materials come via Hong Kong. Needless to say, the business ventures are also with Hong Kong.

This multi-facet enterprise is the eldest of the string of joint ventures between Chinese and Hong Kong interests in the town. It was created in 1982 with the participation of Macao capital, something that is not very common.

It started as a catering firm, and then added an improbable collection of uncoordinated activities: Duty-free shop, supermarket, the growing of mushrooms and finally, their biggest operation, fixing cars.

This latter operation is reputed to be more profitable than the others but it is not the one that absorbs more workers. While 98 are in the auto maintenance business, 128 are in the retail business, 18 in mushrooms and 33 in administration.

Visiting a factory and asking the questions that come to one's mind is obviously a hit and miss proposition. We may be wrong but, somehow, we were not impressed by this one. The garage was obviously well equipped. But a quick glance did not suggest it to be different or better than any other garage. The mushroom factory was altogether messy, with plastic containers scattered all around and the building somewhat derelict. One problem with the mushroom operation is that the firm does not

can them (probably for lack of sanitary clearance for exports through Hong Kong). Hence, they have to sell their mushrooms to Hong Kong canners conserved in brine, inside big plastic jugs. It seems that they do all the dirty work and the Hong Kong canners reap all the profits.

The supermarket looked more like a State store than the shiny and busy private operations that one finds in the neighbourhood (State stores are somewhat reminiscent of East European businesses). The free-shop was adequate but nothing to rave about.

We had a more intimate contact with the restaurant, having been invited to lunch. To a mixture of disappointment and relief from our hosts, we declined the Western menu that awaited us. We were then moved to another table equipped with a table-cloth with many holes. Upon closer inspection, we found that our neighbours also had table-cloths with holes that would allow a coin to go through. The only table-cloth in good condition was the one set for our aborted Western meal. The food was not bad. However, we had been spoiled by outright stupendous meals in the preceding days and thought that it did not stand up to the competition, like most of the activities of the enterprise.

In contrast, its effort to train is highly commendable. Out of a labour force of 280 workers they still keep 10 Hong Kong managers and technicians who, of course, transfer some of their knowledge to local employees. Like in other cases examined, some of the cooks initially came from abroad. Supposedly they have been helping local apprentices to do Chinese cooking. In this particular case, considering our meal, we cannot vouch for the complete success of the learning process that took place.

On training proper, they have already spent 160 000 Yuan since 1982. They started with a labour force in which 80 per cent had no experience (the others were taken from State enterprises). Since then, the total enrollment in the courses offered has reached 400. Instructors included technicians from Japan to help with computers and auto-mechanics (they service Japanese automobiles). Other expatriates from Macao and Hong Kong also participate in training courses.

Half of their courses dealt with English, Computers, Management and Accountancy. Most in-service training is done at night or a half hour before the end of work. Courses last from 3 months to one year.

Auto repair is the longest of the courses and has already been offered to 80 youths. Why not hire graduates from the public vocational schools? They get too much theory and little practice. At any rate, they are not capable of repairing the expensive and sophisticated Japanese cars.

The enterprise uses computers for accounting and inventory control. Presently it has two IBM PCs and four Apple IIs. No mainframes are used. Apparently this is the norm in China. They are moving directly to microcomputers without having the experience of using mainframes directly or by means of service bureaus (At any rate, it seems that computers are used minimally in China these days.) Chinese engineers have given them a three month course on computers. It would have been interesting to find out what happened in these courses.

Their problem is that after all this credible effort of training they end up losing about 20 per cent of their labour force to other younger and more vigorous joint ventures in the region. They are playing the same role

that State enterprises usually play for joint ventures: being a repository of trained labour, always around to be poached.

At the beginning their wages were competitive, and they paid more than State enterprises. But the increases in the local cost of living forced them to increase the wages of the less paid workers. The need to show profits prevents their higher wages from going up. Therefore, they have a spread of between 360 and 410 Yuan. This is far too little to retain the better qualified workers. In fact, it is not more than the pay of the State enterprises that also were forced to increase their wages due to the high cost of living. According to the original joint venture contract, they were supposed to pay more than State enterprises. However, economic conditions do not permit them to do so.

This wage situation seems to explain why they lose so many workers. The fact is, the Chinese fleet of automobiles is increasing fast and one should expect an equally explosive growth in servicing facilities. As many workers as they can train will go to other enterprises.

This is an interesting case. They started before the others, being successful in what they were doing. But they were overtaken by the exhilarating growth of Zhuhai. It gives the impression that the foreign side of this firm is composed of relatively small businessmen, not very specialized in anything, that kept searching for business opportunities here and there. They never acquired the depth required for plunging into one activity and really getting the most out of it. Under uncertain business conditions, this spreading of risk into several activities can be a good idea. But this part of the world moves at unbelievable speeds and they might easily become mere suppliers of skilled labour to more aggressive industries. To sum up, while we were most impressed by the enterprises we visited this one seemed to be the least successful of the lot.

8. Foreign investment to repair automobiles

Automobiles are not too numerous in China and privately owned cars are still somewhat of a novelty. Yet, the growth in automobiles is very fast, in fact, it is much faster than that of trucks. Therefore, repairing them is inevitably a growing business. Capitalizing on this market is a joint venture between Chinese Government agencies and a Hong Kong enterprise that also does auto repairs at its headquarters.

We were puzzled by the possible rationale for such an enterprise. Why a joint venture to repair automobiles? Traditionally, auto repair is done in small roadside shops, anywhere in the developing world. Why such a big operation, involving the Government, foreign investors and all the complications inherent in joint ventures?

This is indeed a big operation. About 480 workers are employed in this business. Upon visiting the shops we ended up with three overall impressions.

They are very well equipped. We could see the standard tools of the trade. Machines to line up steering, electronic tuning up equipment, manual and semi-automatic boring machines, a decent machine shop and the equipment to perform engine overhauls. Bolting and unbolting operations utilize pneumatic machines. Everything is being put to good use and the supply of tools seems plentiful.

Yet, all these features of modern auto repair are used in a small roadside shop style. Parts are strewn around on the ground. No appropriate crates or boxes for disassembled engines or components are available. The piles of dirty parts are just pushed to one side and left there. The floor is not particularly clean. Even the engine overhaul shop is less than impeccable.

The third fact that struck us was the system of work control and follow up. Controlling 480 mechanics is more than a trivial matter. How are orders and instructions passed down, execution followed up and quality checked? This is the nightmare and the Achilles heel of such big shops anywhere in the world. Whatever advantages high scale operations have can easily be swallowed up by the armies of bureaucrats required to make sure that half a thousand workers do what they are supposed to.

This question remains a great mystery to us. The entire organization has only 21 office workers. The administrative procedures seem primitive. Dangling from a nail on the wall are plastic pouches with hundreds of little order slips thrown inside - not even piled one on top of the other. It looks more like a waste paper basket than a control system. The usual transparent pouches secured by windshield wipers are nowhere to be seen. In some of the developing countries we know, with such a system they would need another team of 21 bureaucrats just to deal with complaints of dissatisfied customers.

But somehow they remain in business, seem to show profits and claim that the quality of their services is superior to that of their small shop competitors - that surround their enormous building. They say that they charge the same prices as their competitors and have long waiting lists. Are Chinese mechanics more disciplined and honest than their counterparts elsewhere in the developing world? We cannot solve this mystery.

Some of their comparative advantages seem to be in access to the requisite maintenance manuals from the manufacturers and a very ambitious training programme.

Their employees need a high school diploma prior to enrolling in the one year training programme offered to all new entrants. The training takes place in a separate building. Especially selected instructors and teachers give them theory and practical classes. At present, they have 130 students undergoing training. Almost all workers (95 per cent) have received training.

During this training they work without a regular contract. They get food but no wages during this period. Yet, they may get a fellowship from 5 to 50 Yuan per month. The value depends on their performance.

This is an interesting scheme. By paying little and getting some repair work done by trainees - under the supervision of instructors - the enterprise dramatically lowers the costs of training. According to the manager, the training centre does not break even, instead, they operate with losses. The firm ends up spending about 0.3 per cent of their revenue on training. Yet, by operating a

training centre that costs little and generates revenue they can afford to train all their workers. This may be one of their competitive edges on the market.

The centre also prepares technicians, using college graduates as raw material. The inadequate quality of the education imparted by some higher education institutions is indicted by such practices.

There are public vocational schools teaching auto repair in the province. Those apprentices that graduate from these schools can forego the theoretical training offered in their centre. But they claim that graduates from vocational schools lack practical knowledge and have to learn from scratch in their programme.

They pay wages that range from 80 Yuan for recently graduated trainees up to 780 for the Chinese managers (The Hong Kong staff, as everywhere, earn much higher wages). This is a spread of 1:7, one of the highest we found. The mean wages are 244 which is about 30 per cent higher than in comparable State firms.

This enterprise seems competitive in the labour market. Only 2 workers had to be dismissed and no more than 30 resigned. Of course, these constitute their future competition. Most mechanics that leave the firm start their own small business. In fact, dozens of small repair shops surround this big firm in a district of Guangzhou that specializes in small manufacturing and repairs. While being self-employed they have no social security benefits, but their average earnings are likely to be around 500 Yuan, twice as much as they typically earned before. To some more enterprising souls, this is a very attractive new career path. Earning twice as much is an enticement anywhere in the world. In a city invaded by the Western consumption fever and where average earnings are still very low, it is a most compelling temptation.

But to understand the opposing forces that face a new worker in China today we may take this enterprise to illustrate the broad roles of a Chinese enterprise. Enterprises provide more than a work place. Typically, they feed their workers, at least once a day. They often have dormitories for unmarried workers and housing facilities for those who have families. They may take care of health problems and perform other such jobs. But they go further. Sport activities are sponsored, as well as cultural activities. We saw an exhibit of photographs, paintings and calligraphy done by the workers. It was curious to see that some of the entries had texts written in English with a penmanship that one could no longer find in the West. We also saw the little flower gardens which every worker has to plant and maintain. The one kept by the managerwho showed us the shop is right in front of the "executive" dining hall where he treated us to an unforgettable banquet.

To sum up, this is an interesting case. We think of joint ventures with multinationals as big operations with state of the art technology. Here we have a different firm. A traditional Chinese repair shop gets together with a traditional Hong Kong repair shop. From China comes part of the capital, the know-how of surviving in the maze of the local bureaucracy and the labour. From Hong Kong comes the know-how of running a conventional repair shop. This is a far cry from the typical maintenance shop operated by dealers of auto manufacturers, for instance, in countries like Brazil. Yet, given the lack of experience of China along these lines, they still have a competitive edge. On the other hand, this is socially a very useful firm. In the long run, their strong dedication to training will contribute to creating a large supply of well-trained auto mechanics. As competition becomes stiffer, they are likely to lose more and more personnel to newer firms as well as to the multitude of small shops that crowd the city of Guangzhou.

9. Mass producing bicycles for the world

Crossing a street in China is a new experience for Westerners. We use our ears as a first cue to warn of approaching vehicles. Since bicycles make no noise; the danger of being run over by one is very considerable. And no matter where we go, the compact mass of two-wheeled vehicles surrounds us the moment we step onto the streets. Somehow, collisions are less frequent than expected and we squeeze between the thousands of ringing bicycles unscathed.

After such close physical contact with them, it seems only natural to concede that the Chinese have all the experience required to produce bicycles for the rest of the world. The bicycle factory we visited is an eloquent example of that.

Yet, this is a joint venture, not a strictly Chinese enterprise. Equity is divided into three equal parts. One third comes from the township of Shenzhen (the largest and most prosperous of the cities created as a result of the SEZ). The second comes from a Hong Kong bicycle factory and the third from a very well known American manufacturer of bicycles.

This is a very typical pattern of organization. The Hong Kong factory provides the interface with Western markets and more advanced experience in industrial organization. Ten managers and ten technicians from Hong Kong work full time at the factory in very key positions. At the same time, China offers the possibility of deploying workers with acceptable productivity and that earn about one tenth of what is current in Hong Kong. The fact of the matter is that the Hong Kong partners subsequently closed down their own manufacturing facilities.

Export bicycles are expected to be of a much higher quality than the run of the mill Chinese versions. In fact, the bicycles are too expensive for the Chinese market.

The American partner has a well-reputed brand name in the US and its participation seems to focus on quality control. One American engineer is always around and the quality control laboratory is equipped with Snap-On tools, the Rolls Royce of hand tools. These tools look somewhat misplaced in China where a wrench looking the same is sold at a price perhaps one hundred times lower. All the American quality control manuals can be seen in this shop, specifying the minutest details of the quality expected from this famous firm.

In a different vein, it is interesting to realize that in a firm where one third of the capital is American, less than 10 workers speak English (i.e. less than one per cent of the workers). And to judge by other experiences we had with persons claiming to speak English, this definition of fluency is very generous.

Bicycle technology is anything but high tech. Since the turn of the century, hardly any changes in design and materials have been introduced (Notice that the bicycle still being used today by the Swiss Army is a 1906 model!). Yet, producing 3 000 bicycles a day creates a different set of problems and can be considered a feat in itself.

Assembly line techniques have to be adopted throughout in order to obtain such high levels of output. The same is true with the jigs, which create some kind of poor-man's fixed automation. All machines have jigs set up to produce parts and weld them within

close tolerances. But little effort is made to save labour. The idea is to increase productivity and accuracy, not to dispense with labour as would be the case in industrialized countries. The Chinese manager claimed that they had the latest in technology and if anything new were to appear they would consider adopting it. This is a very elusive proposition. If we take it literally, it is not at all true, the technology is old and presents no technical novelties that we could detect. Yet, given the low cost and high dedication of Chinese workers (when properly motivated), this is a beautiful example of choice of technology to fit the relative factor endowment of the country.

While the Chinese manager boasted the technological sufficiency of the country to produce bicycles, he conceded that the set of jigs used to build and weld the frames, the most critical and time-consuming operation, was designed by a Japanese engineer. It was, nevertheless, built on site by their own staff. On the other hand, the factory displays some technological prowess in their latest racing models with titanium frames and wholesale price tags above US$ 1 000.

The frame manufacture offer sights reminiscent of the most frenetic days of the Industrial Revolution. Several hundred young workers cut, press, braze and weld at a very fast clip. Every operation requires the human hand, but not the hand of the artisan that examines, ponders, then acts. It is a fast, totally automatic behaviour of feeding machines, fastening parts, pressing buttons, unloading and repeating the operation. This made much sense one century ago in the United Kingdom and it makes sense now in China. Abuses, of course, do not make sense in either environment but we did not see serious problems of safety or labour conditions. These workers operate in small teams that have minimum quotas of production. By producing above that level the team gets a bonus, i.e. additional money.

The assembly line, in contrast, offers a different visual landscape. It is a modern looking, high tech environment and the speed of the conveyor belts is rather leisurely. Quality control and packaging are built into the same belts and the end product is knocked down bicycles inside cartons. This is where the American engineer could be seen, looking exactly like an American engineer does, with a shirt pocket full of pens and pencils. We could not check if the HP scientific calculator was dangling from the belt but it would be surprising if it were not.

Not all bikes have the brand name of their famous American partner. In fact, most are the brands familiar in the European and North American countries of destination. As we see their showroom, several dozen different brand names are marked on the frames. We recognized many of the brands we see in Western stores.

There are some interesting features to the labour force and its preparation. Out of its 1 075 Chinese workers, only 10 machinists had ever worked anywhere else. Another 20 workers went to Chinese bicycle factories for internships. All the rest were trained in-plant. During 1985, the first year of operation, about one semester was spent on training the workers.

New workers today need about three months of initial training before they can become regular workers. But most of this training is on the job.

All training materials are Chinese. This was asserted with pride but we think of that as a foregone opportunity. Americans probably would have training materials of high calibre that could be adapted. Qualified observers who write about Chinese training materials have few positive comments on what is used by schools and training programmes.

The firm pays average wages of 333 Yuan, with a minimum of 245 Yuan and a maximum of 715. Compared to other State firms in the region, it pays 20 per cent higher wages. But compared to other regions, wages are 50 per cent higher. All workers are now under contract. This is what one would expect, considering that initial workers enter the firm without any experience and the few skilled workers are very well paid indeed.

Despite the absence of permanent workers, the policy of the firm is to retain all good employees. Thus far, only 18 have been dismissed, mostly for breach of discipline and fist fights. Resignations reached 65, a modest number, corresponding to 2 per cent of the labour force per year. We were told that these are people who acquired the status of local residents by joining this firm and quit briefly afterwards. Probably, they opted for lighter work in Shenzhen.

This factory offers a very eloquent example of extremely intense utilization of cheap and industrious labour. Their production is approaching one million bicycles per year. Almost all production is exported. Their costs are probably unbeatable. Industrialized countries could automate production but the low value of the product would hardly justify the investment. Other low cost countries would not have the economies of scale obtained by a well-run factory of such huge proportions.

Workers are driven at a very fast clip but their wages are 50 per cent higher than those they could earn under the slower pace of traditional Chinese factories. The need to severely control access to the SEZ clearly shows that young Chinese find a good deal in the 50 per cent added consumption in exchange for the hardships of early Industrial Revolution work environments. And for those previously in agriculture, the work is no harder and the added earnings many times higher.

10. Coca-Cola cans to the Chinese market

This factory produces disposable aluminium cans for carbonated drinks and beer. Coca-cola, Pepsi-cola, the Chinese breweries and several other brands are their clients. In every restaurant we went, from downright popular to the best in town, the moment we sat, a can of beer or a coke was almost imposed on the clients, be they foreign or Chinese. But that is not all, in most cases no other drinks were available.

Beer arrived in China a few decades ago and Coca-cola had to wait for the departure of Mao. Yet, in the big cities we went to these are just about the only cold drinks taken during meals. Beer production now reaches 6 billion litres and soft drinks 3 billion.

It stands to reason that a firm producing aluminium flip-top cans joins one of the most booming markets in the world. The factory

we visited operates at full capacity, with three shifts, seven days per week, with no interruptions other than those required for maintenance. It is not surprising that they are extremely profitable, having paid off the invested capital in the first year of operation. Government agencies consider it as the number one joint venture in China.

But lets not take all the credit from them. A good market helps but has not prevented poor performances anywhere in the world. And this factory gives a very good overall impression.

The majority of equity is Chinese, (65 per cent), a Hong Kong enterprise comes second (20 per cent) and the third is the American firm which holds the technology (15 per cent). This is a very clear and repetitive pattern. The Chinese in most cases are the largest investors, in order to retain control. The Hong Kong firm, in addition to the capital, brings the know-how that is purchased from Western sources of technology. Countries like Hong Kong and Singapore establish a bridge between China and Western countries. The latter have the production technology and the former the know-how to operate both in a Chinese and Western environment.

In total, US$26 million were invested in the operation. The contract was signed in 1985 and ratification by the Chinese authorities was obtained in record time. Even more spectacular was the rhythm of construction. In seven months an agricultural plot of land became a modern factory ready for operation. In fact, the management boasts that the speed of construction surprised the American partners and beat the partners from Hong Kong who were building another factory of the same type. The Hong Kong and American factories were able to obtain profits only after the second year while they did it at the end of the first. The avidity of the Chinese market has to be considered when looking at these comparisons but one must grant that these are impressive results.

Like several joint ventures, the general manager is from Hong Kong, as well as a few key executives. The transfer of management styles from the West via Hong Kong is one of the main features of the joint ventures in China. The Chinese managers with whom we spoke credit a good part of their success to good management.

Considering that China is a country of cheap labour, the technology used does very little to utilize this abundant resource. The factory is a most representative example of state of the art fixed automation. It is a factory that has the technology appropriate to operate in the United States or in Switzerland. All operations are automated, from loading raw materials to carrying away on pallets the crates with the empty cans. The shopfloor is spotlessly clean and has the look of those that can be found in affluent countries.

In many ways, it is an easy factory to operate. Equipment is new and of very high quality. The rhythm of production is dictated by the pace of the machines. Since breakdowns are infrequent, production rates are almost predictable. They have a single product, differentiated only by the name of the drink stenciled on the can. The raw materials are only one or two grades of aluminium sheet.

The factory operates with 365 employees, of whom 38 are production workers. Since they operate in three shifts, one can see that 46 workers operate about 20 million dollars worth of equipment. They have 1.6 administrative and clerical employees to each shop-floor worker. This is a most unusual rate in China where administrations are relatively lean, compared to the army of shop-floor workers, some of them bringing little contribution to output. In other factories we visited, administration is about 20 per cent of the

labour force (contrasting sharply with Western patterns of much fatter administrations). This, however, is just an illusion as it is not the administration that is inflated but the shop-floor that has shrunk dramatically, given the high level of automation.

At the technical level, they have 6 engineers and 60 technicians or assistant engineers. Among their 8 electricians, 6 are college graduates. One result of the new economic policies is that firms like that can afford to recruit people according to their real qualifications and market laws, rather than by formal certification. These engineers accepted the jobs of skilled workers at the wages offered.

Given their profits, paying higher wages is no problem. They could pay as much as they wanted but they chose to stay 20 per cent above State enterprises of the same nature, considering the market around. Given the superior wages paid, they were able to attract one third of their workers from State enterprises. Some friends of present workers even resigned from State enterprises of their own free will to join the firm. The remaining came directly from regular and vocational schools.

At first they used the services of the Labour Bureau to identify the workers with the profile they wanted. Having acquired the experience, they now advertise in newspapers or get references from their own employees. As they say proudly, they "go to the market". They now have files from 3 500 candidates who responded to their offers. Like many other firms, they still need the Labour Bureau to negotiate the liberation of the candidate from the firm where he is working. As they see the evolution of the labour market, even older workers want to earn more by working in joint venture enterprises, at the cost of exchanging their lifetime tenure for a five year contract. Yet, in order to poach these workers from other firms they need the help of the Labour Bureau that has to negotiate their departure from their present positions in State firms. From what we know, this is a delicate negotiation, involving more than we could fathom.

Since the beginning of operations they have lost 9 workers who left of their own free will and dismissed two for breach of discipline (a very loosely defined concept these days since it may be based on consistently poor productivity). This is indeed a low turnover. It must have to do with the good level of pay - compared to the competition - and a pleasant working atmosphere (despite the 85 decibel noise level on the shop-floor). They pay a maximum wage of 400 Yuan and a minimum of 130 Yuan, the average wage being 300 Yuan.

Their training pattern is rather typical for this sort of industry. At first, they sent 28 workers abroad for training (27 were sent later on). Upon their return they helped train other workers. In addition, over ten foreign experts also came to train the workers who had not left the country.

The factory encourages and finances workers to be trained in local schools and training centres as well. More than 60 have taken this opportunity. Self-learning programmes (meaning night schools) were frequented by more than 100 workers and 10 took the Educational TV programmes. The firm also sponsored 12 workers to study English. It was interesting to see that they cover the fees only if the students pass the tests.

This overall package effort must represent a very substantial sum of money. It is all the more surprising therefore that they do not know how much they spend on training, i.e. they do not have a budget for training or a systematic accounting of such expenditures.

At the same time, there has been little effort to prepare training materials for their programmes. Most of the materials used are those used by regular vocational programmes. The exception seems to be some materials supplied by the vendors of the machines.

What can we say about this enterprise and its contribution to Chinese industrial development? Certainly, it is a well-run enterprise, both at the financial and the technical level. The factory is spotless, as much as it is immensely profitable. It earns much foreign exchange from exporting to neighbouring countries. It does a credible job of training the technical staff which is critical in keeping the factory moving at full steam ahead. But its labour absorption is minimal. In fact, one could not think of anything more capital intensive. The consequences for other industries (linkages and other connections) are non-existent.

The reason this factory exists at all is that the Chinese decided that drinking Coca-Cola is a good thing. And also, that this beverage is to be bottled in disposable aluminium cans. Once we accept the wisdom of these decisions, all the rest makes sense.

11. Manufacturing electronic parts for Western markets

East Asia is becoming the main manufacturer of consumer electronics destined for the Western world. Products with unknown Eastern names invade the lower end of the market. But there is more than that. Phillips designs its products in Eindhoven (Holland) but increasingly manufacturing takes place in their Singapore plant. The same might be true of General Electric and most of the other big names.

While Japan was the first successful contender for this market, production has been progressively shifted to less expensive countries. Singapore and Korea were the next low wage countries to take up consumer electronics, followed by Taiwan, China, and Hong Kong. As manufacturing takes root and wage levels increase, the easiest and most labour intensive stages of production are shifted to countries where the costs of labour are still lower.

China is now becoming one of the main sources of cheap labour. Of course, there is more to this than low wages. Political stability, policies that favour manufacturing and an industrious labour force are some of the other ingredients required. And China has them all.

This electronic parts firm is the perfect example of these new developments. Located in Zhuhai, the prodigious SEZ that hardly existed a few years ago, it is a joint venture between the local government and a Hong Kong enterprise.

The firm manufactures electronic parts and components. They produce the trimmings for the casings of all types of electronic products. They also have a very significant line of printed circuit boards. Injection molding of small plastic parts, loudspeaker covers, nameplates and film switches are also offered.

More than half of their output is exported and will be installed in brand name products like Phillips and General Electric in their assembly plants in Hong Kong or Singapore. The other half goes to the domestic market, which is partly constituted of exporting firms.

This is a very busy factory, dating back from 1985 when they started with direct help from their Hong Kong partner. Five technicians from Hong Kong worked at the factory for one year. At present, theyhave 240 workers and can hardly keep up with the demand. They operate with two shifts with the exception of some critical areas which operate around the clock. From what they say, at first they had to chase their customers; presently they sit and wait.

While low wages are the key to their competitiveness, this factory is a far cry from the simpler processing industries that merely assemble products. Printed circuit boards require relatively sophisticated technology to execute the designs received and etch the boards. Cold pressing in itself is a simple operation but the immense variety of product lines requires the frequent manufacturing of dies for the presses.

All in all, it is a sophisticated production line, requiring expensive and automated equipment for the circuit boards and high level workmanship for the manufacture of the cold press dies. They have modern wire cutting machines, spark corrosion machines and CNC milling machines. In total they sport four CNC machines which is impressive for a relatively small factory. They are already beginning to do a little R&D but their main line is manufacturing parts specified by customers.

The factory has three engineers, 28 assistant engineers and a few technicians from Hong Kong. They have four people who speak English who are used either as interpreters or to translate technical manuals. It was claimed that they also have another twelve employees who can read English. In exchanging a few words with the interpreters we were not impressed by their mastery of the English language. This is something that we saw over and over again. Even the so-called translators have a very deficient knowledge of foreign languages.

They have eight "non-productive" workers (this classical Marxist definition is still used throughout China). Of these, eight are managers and the others service personnel (cooks, drivers, cleaners, etc.).

The remaining workers are at at the production end of the factory. Of these, a little over 50 are highly qualified craftsmen. In the case of the tool and die makers, as well as the operators of the CNC machines, these are very high calibre skills. And those are the workers that are pushed the hardest, as the tool and die making shop is the one that operates with three shifts. Given the time it takes to train workers with these profiles, they had to be poached from other factories, after complicated negotiations with the Labour Bureau. These were among the workers who received 8-year contracts. All the newer and less experienced workers receive 2 or 3-year contracts.

Initially workers receive a three-month training programme. But this is of the on-the-job variety with little theory and little time for long explanations. There are blackboards on workshop walls but given the pressure to keep to deadlines and the fact that workers are tired at the end of the day, not much is achieved in addition to this minimum diet of training.

On the other hand, the enterprise tries to benefit from whatever Zhuhai and Hong Kong can offer in terms of training. Already 32 have taken courses in a Zhuhai school and seven went to Hong Kong for a three month programme on new work technologies organized by the Zhuhai municipality.

The lowest wages are 200 Yuan and are paid to probation workers. The managers get 500 Yuan, the highest wage. The mean wage is 380 Yuan which is 30 per cent higher than similar State industries in the region.

If keeping employees is an indication of competitive wages, they are paying adequately since only four were dismissed since 1985 and only two resigned. It is interesting to see such low rates of turnover in a factory which has so many highly skilled workers like tool and die makers.

To sum up, this is a sophisticated factory which displays very advanced equipment while still relying on manually fed machines for the more repetitive tasks. The work they do seems to be of high quality and their clients are among the best known brand names in consumer electronics. They are too busy keeping to deadlines to be able to have an ambitious training programme. But the very nature of what they are doing requires the development of skills by whatever other means is available. In many ways, they seem more independent of Hong Kong (from a technical and marketing point of view) than most other factories we visited.

12. British banking via Hong Kong

This bank is the quintessence of a British financial institution. But it also has deep roots in Hong Kong. Moving to China is a natural move, as so many Hong Kong firms are doing business in China.

Chinese banks are still somewhat behind in their practices, while the bank we visited offers correctness and efficiency - so claim the sharply dressed officers from the newly created Zhuhai branch. Their obvious clients are foreign firms that expect banking practices to be similar to what they are used to in Hong Kong or Western countries.

In fact, until recently they only dealt in foreign exchange. But even though they now have regular Yuan accounts, their clientele is bound to remain, for some time, the firms with foreign participation, to whom they give advice, finance new investments and provide working capital.

The opening of a branch in Zhuhai is an obvious move for a bank that tries to follow foreign business in China. They have eight offices in cities like Shanghai and other busy industrial centres. Zhuhai is growing at a fast rhythm and wanting to capitalize on this new business is only natural.

Not being a bank geared to the general public but to large institutional accounts, their office is small and discreetly luxurious. Their staff comprises seven clerks from Hong Kong and seven from China. This is a proportion of expatriates totally out of line with what can be found in most foreign firms - where 10 per cent would already be a very high ratio.

Most likely, this is due to the absolute requirement of English language mastery. As a result, they end up hiring Chinese staff who have the English language as a major field of study at the University. The other University career from which they recruit is international finance.

Like any other firm, they have to utilize the services of the Labour Bureau to persuade the firms to let go the individuals they want to hire. This is a long drawn out process and the negotiations are subject to procedures that we do not quite understand. Another peculiar feature of this case was that prior to being authorized to deal with domestic currency, the Bank was not expected to hire their own employees. According to the current regulations, they would have to use the Labour Bureau as a "manpower service bureau", being able to suggest the workers they wanted but not being allowed to hire and pay them directly. They argued with the authorities, pointing out the difficulties and complications of such a scheme and were subsequently allowed to hire directly. In other words, the seven Chinese officers are now direct employees of the bank.

This is as much an example of bureaucratic complications as it is of flexibility on the part of authorities which are willing to make exceptions and experiment with different solutions. There was some indication that the Government welcomed the added simplification of direct hiring.

Like many firms in the Western world, they prefer not to hire service and janitorial help directly. For such simple jobs, they find the services provided by the Labour Bureau more convenient and trouble free. No time is lost in hiring and dismissing. They just tell the Labour Bureau to replace this or that worker who is not up to standard - .We just wondered if that would be the case with the poor woman who managed to spill an entire pot of coffee into the lap of one of the ILO consultants.

The seven workers hired directly receive three year contracts. But these are binding only on the side of employers. They are free to go after giving one month´s notice.

Newcomers receive a familiarization programme during one month. Headquarters provide the requisite manuals but there is presently little time to devote to training in the busy Zhuhai environment. Some more promising employees are sent to Hong Kong for on-the- job training and to attend special seminars on banking practices. This is a selective programme, leading to promotion to supervisory positions. Less than five employees from all the Chinese branches have taken it.

Given the highly selective nature of employment, their salaries are quite high. The average earnings are a little less than 500 Yuan and the maximum level is 1 000 Yuan. (While these wages are enormously high compared to other Chinese cities, they are still about ten times lower than those of the Hong Kong officers. But in either case differences in the cost of living have to be considered) Such levels, however, are not much higher than in comparable Chinese enterprises, since they pay no housing subsidies and rents are at a premium in Zhuhai. It seems that the real attraction of positions such as these lies in the challenges and the promotion prospects.

One should not underestimate the role of banks such as this in helping foreign business to become established and to operate in the Chinese business environment. For a Western partner, Chinese bureaucracy is thick and mysterious. Regulations are not clear. Casuistry seems to prevail. Consultations with higher levels of the administration are only too common. Answers take a long time to come.

The Chinese mentality is different from that of Westerners confides one of the Hong Kong managers. We then proceeded to ask about the mentality of the Hong Kong Chinese. Do they also become impatient with what seems to us to be the tortuous styles of the mainland Chinese administration?

"I am ashamed to answer this question", was the response of the disconcerted young lady.

13. Japanese printers made in China

This is an important computer printer manufacturer in Japan. Well known personal computers come traditionally with a printer that is manufactured by this enterprise. Two years ago they established an assembly plant in Shenzen to make step motors, to assemble calculator printers and to assemble watches (from a sister enterprise). All products are exported to the Hong Kong subsidiary.

Although almost all the parts come from Japan, what they do in China is far more sophisticated than soldering electronic components on an assembly line, like in the typical processing industry located in the SEZs. In fact, step motors, printers and expensive watches are high precision products that require very demanding manufacturing processes.

These three lines were produced in Japan, being subsequently transferred to China. They brought all the machines and production jigs from Japan. Particularly in the case of the step motors, the equipment required for production is very sophisticated. The watches require a (low level) clean room to be assembled.

The factory is extremely clean and orderly. Not only is this a requirement due to the high precision nature of the product but it seems to go beyond that. It probably has much to do with the Japanese styles. Even the mugs which workers use to take their tea are arranged in symmetrical niches along a wall. Upon entering, visitors are offered sandals and asked to leave their shoes at the reception room.

As in most high-level electronic products, quality control is elaborate, frequent and very demanding. In addition to all the usual checks, printers are put in ovens and freezers to see if they remain operational under extreme temperature conditions.

In contrast to the other firms we visited, this is a 100% foreign enterprise, completely owned by the Japanese. Yet, similar to just about all the industries we visited, these foreign investors did not dare come to China on their own. It is their Hong Kong branch that enters China. Thus, for all practical purposes it is the Chinese from Hong Kong that do business in China on behalf of the Japanese. Interestingly, the Hong Kong personnel communicate with headquarters in English.

We spoke to two Hong Kong engineers about doing business in China. They were quite satisfied with the workers who are said to be competent and very obedient to superiors. They still think that Japanese workers are more productive. It was mentioned that the assembly line in Japan turns 5 per cent faster. But on the whole they have no complaints.

In contrast, Chinese bureaucracy was still an unsolved puzzle for them. They fail to understand the maze of components of wages as well as the transfers to the government. Much discussion is required to get anything done and the bureaucracy has a low reaction time.

The factory has five Japanese managers, eleven Hong Kong high-level personnel and 400 young women (plus 20 service personnel like drivers, etc). The young women are required to have a high school diploma and are trained on the job in about one month.

They pay mean wages of 300 Yuan to the average worker and around 400 to a few that have higher qualifications. With these wage levels they have no difficulties whatsoever in finding the cream of candidates they need. Yet, 10 per cent of the workers is composed of rural women who receive only 200 Yuan. This is a very strange situation. It is the Government that determines this quota of 10 per cent and also the lower salaries paid to these women who have exactly the same formal qualifications (high school diploma). It probably has to do with reducing the incentives to would-be migrants from the rural areas. In fact, they are not allowed to hire village girls without approval from the Labour Bureau.

Given the commitment of big Japanese firms to lifetime employment in their own country, it is curious to find that this is not at all what they favour for their Chinese employees. Instead, they offer all of them three year contracts, following six month´s of probation. They claim that shorter contracts add flexibility.

This is a factory that makes economic sense on all sides . The Japanese pay salaries that are about twenty times lower than those earned in their Hong Kong subsidiary. The Chinese get 400 Yuan, these are high paying jobs by Chinese standards. In addition, it generates quite significant export revenues.

Nevertheless, there is not much more than that for the Chinese. These are extremely mature assembly line operations in which all bugs have been removed. All operations are perfectly streamlined and well defined. There are no technical challenges and very little learning taking place. All engineering decisions come from Japan ready made. All high-level personnel are from Hong Kong and Japan. The Chinese women are in practically dead-end occupations. While it may be a high tech factory, in terms of social learning it probably has lesser consequences than some low tech and almost sloppy operations we visited, like the automobile repair shops.

14. Stripped down capitalism: The assembly of consumer electronics

Several hundreds of the so-called processing industries have already been established near the borders of Hong Kong. They constitute a very important source of foreign exchange and employment creation. In Shenzhen alone, 200 000 jobs have been created by these industries.

In many ways, they are just the opposite of what State enterprises stand for. This is true of their good as well as their bad features.

A State enterprise will often have quaint gardens, baked clay open-mouthed fishes to receive trash, cement ponds, miniature pagodas and abundant flower pots at the main lobby. However, as one enters the workshops, there may be be rubble on the floors, less than impeccable levels of cleanliness and a certain appearance of disorganization. Furthermore, not all workers are busy all the time.

In contrast, let us take the example of a processing industry that assembles consumer electronic products. The main entrance looks like the back door of any self-respecting factory. The building is derelict. The window panes are dirty. The doorways are half blocked by empty crates of raw materials and supplies. The whole thing looks more like decrepit housing in a slum than a factory.

But the moment we enter the workshops, as if by magic, it is a different world. Everything is clean and organized. Lighting is bright and functional. Assembly lines are well laid out. The components are neatly kept in bins arranged along the assembly lines. The conveyor belts move at a fast clip and workers cannot waste one second, lest they fall behind. They work very hard but do not look stressed or like zombies. Supervisors with two-way radios dangling from their belts move back and forth at a hurried pace.

They are assembling Toshiba bedside radios and General Electric "walkmans". As the sets approach the end of the belt, several quality control checks are applied. Some girls introduce sample tapes to check the frequency response. Others bang the units from all sides with a rubber hammer to check for cold soldering or intermittent functioning. Some older looking boys try to repair the rejects that fail the quality inspections.

As we leave the workshop, we cross with Japanese engineers from Toshiba who have come to make sure that quality standards are being respected. After all, these products have a "Made in Japan" label that took many decades to become a symbol of quality.

In more ways than one, this is a typical processing industry. It is entirely owned by a Japanese firm that seems to specialize in subcontracting the assembly of consumer electronics in countries where labour is cheaper. They opened a Hong Kong based subsidiary in order to benefit from the lower wages of Hong Kong, as compared to Japan. But since Chinese wages are still lower than those of Hong Kong they just opened this factory in Shenzhen. They plan to abandon all manufacturing activities in Hong Kong and concentrate them in China. Hong Kong remains the commercial end of the operation but it is a better idea to manufacture in China.

Like most other cases of foreign investment in China, they operate through their Hong Kong subsidiary. It takes ethnic Chinese to operate in China.

But the overall style of operation of these "processing enterprises" is somewhat peculiar and deserves commenting on. For all purposes, the risks are taken by the foreign enterprise. They buy and sell, as well as provide the technological expertise. If the firm generates losses it is their responsibility. If it makes profits they pocket all of it. But they do not hire individual workers, nor do they directly supervise the management of the factory.

What we could call a service or a manpower firm does the hiring and sells the entire package to the foreign entrepreneur. In other words, it is as if there were two enterprises co-operating. The foreign firm is a regular risk-taking enterprise. But at the local level, there is another institution that sells a package of labour and management to the foreign firm. In addition, they may borrow funds to build the physical facilities which are then rented to the foreign firm.

The structure and nature of this local service firm is complicated to understand and subject to variable institutional formats. It is a hybrid between a co-operative and a profit-making enterprise. It seems that in urban settings those in charge are not allowed to pocket the rents or the differences between what is charged to the foreign investor and what is paid to labour. However, in rural regions this is not so. The Western press has reported a new class of rich operators that is springing up, under the umbrella of these processing industries. From what we could find out, these are the rural-based varieties and not the case of the industry we are describing.

While this factory has only been in operation for three months, it already has 500 workers. All the critical technical operations - including maintenance and training - are performed by ten Hong Kong technicians. It is revealing to find that there are no engineers in the factory, only two technicians.

In addition, the factory has 30 skilled workers who do some repairs and troubleshoot defective products. These are typically graduates from vocational schools in electronics. As reported by Chinese managers, the formal training received at vocational schools is very basic and they need an additional three month training programme prior to assuming a regular workload on the assembly lines. The remaining workers - more than 450 - are semi skilled and receive only the minimum on-the-job training.

The average wages are around 200 Yuan. This is only ten Yuan more than the minimum wage level. The highest wages go to the Chinese managers who are also partners in this bizarre "service bureau". They presently earn from 300 to 400 Yuan but in the near future will receive an increase.

There are many more similar firms. This is a stripped down form of capitalism. There are no frills and nothing but the basics. They worry about the essentials and forget the rest. Clearly, they zero in on cost minimisation and productivity maximisation. And they are being highly successful on both counts. Their share of the world market for consumer electronics assembly seems to be growing at a breath-taking rhythm.

The formula is not new; countries and territories like Hong Kong, Taiwan (China) and Singapore have pioneered this style. And if their trajectory has anything to suggest for the future of Southern China, there is nothing wrong with what they are doing, as long as it is a temporary stage. It only remains to ask whether this is the direction that China wants to move in.

15. German toys made by Chinese peasants

Probably in no other area are the Chinese comparative advantages so clear as in toy manufacturing. Chinese wages are very low compared to other countries that have the initiative and the overall environment that permits large-scale manufacturing. But more than that, toy factories tend to be located in rural areas in Southern China, where wages are still lower and the struggle to find a job much harder.

The factory we visited is located in the neighbourhood of Shenzhen but being defined as rural, it can benefit from the looser and more permissive conditions that *de facto* prevail in rural areas.

Like the electronic processing industry described before, the risk-taking entrepreneur is foreign. In this case, it is a Hong Kong toy factory that manufactures dolls and other plastic toys that are sold under the name of famous toy makers all over the world. We met the managers in a room that aso serves as an exhibition hall for their latest products. We were impressed by the good finish of the dolls, mostly carrying a German brand name.

Like in the electronics firm, all manufacturing facilities have already been moved from Hong Kong to China.

The Chinese side of the business is a village association that provides the labour and the management. Four Hong Kong technicians come every week to check and perform occasional maintenance. A few skilled workers operate the plastic injection machines. All the remaining 1 100 employees are young girls of peasant origin. The training is very basic and is offered during a two month period in which trainees receive lower wages (in theory, they are charged 5 Yuan per day for the training which is then subtracted from their initial wages).

Mean wages are 180 Yuan and the minimum level is 160. When training fees are taken from this initial wage, take home pay ends up being less than 50 Yuan during the training period. The maximum wages are around 300 Yuan and are paid to the skilled workers who do plastic injection. All workers are on one year contracts.

The rural status of the enterprise further reduces the rights of workers, as well as the fringe benefits such as insurance and health care. It is a known fact that rural regions are much less subjected to laws and regulations. There is less enforcement of rules and welfare services more basic.

The workshops are housed in buildings that are very rudimentary and not at all well maintained. But to judge from other factories we saw along the road, this is a very typical pattern. The view inside the workshops is peculiar indeed. It has one component of the early Industrial Revolution, with over one thousand young women working around huge tables. Raw materials and rolls of fabric are piled all over the place. On the other hand, the dismal look associated with the Industrial Revolution is not at all present, as the bright colours of the raw materials do not fit our images of sweat-shops at all. And again, these girls seem only too happy to work there. It is lighter work than rural toil and procures much

higher incomes. They giggle and talk to one another as visitors come by. But even more improbable, they seem to spend all their wages on buying the latest fashions that China produces under New York and Paris "griffes". It is not uncommon for girls under 16 to disguise their true age in order to obtain jobs in these factories.

These are unforgettable sights that make our thoughts go in many directions. What do we make of hundreds of young Chinese girls combing the hair of blond dolls or dressing teddy bears in gaudy colours? Is this the path to economic development?

LESSONS IN TRAINING, MANAGEMENT AND TECHNOLOGY

Visiting fifteen enterprises is a far cry from acquiring a sound grasp of Chinese business practices. Therefore, any generalizations to be derived from such a minute sample have to be taken with much caution. Notwithstanding, the visits left some impressions and we perceived patterns that seem to persist from one firm to another.

Needless to say, generalizations derived from a 15 firm sample are no more than weak hypotheses about the remainder of Chinese industry. This is true with technology as well as with management and training. The reader is hereby warned of the precarous nature of such extrapolations. In order not to overburden the style, no further caveats along these lines will be added to the remaining text.

An overall view of such impressions and policy suggestions are presented in the paper *The meaning of foreign investment in China* (available as Discussion Paper # 36 from F/POL, ILO). Our purpose here is to explore further some questions on training. But in addition, a few shorter comments on management and technology will be offered.

A. Importing Technology

China has adopted a very liberal policy of encouraging foreign investment. There is nothing wrong with this policy, considering the Chinese reality today. Yet, it becomes very hard to generalize about the technological impact of such diverse investment. Some general features, however, reappeared in most of the firms visited.

It is quite remarkable that one can erect a factory in a rural area, staff it with peasants and within a few months be producing relatively sophisticated toys, radios or garments. All the more if this is done at internationally competitive prices. In some ways, the less glorified "processing industries" are quite an achievement. They by-pass the long years of learning that characterized much of the industry in developed countries. The endless stage of shoddy products and high costs has been properly averted in these industries.

What was the secret? Turnkey factories, abundant help from people who were operating similar factories, and unpretentious choices of products and technologies are some of the reasons. Strict quality control by the foreign partners could be seen everywhere. In fact, sometimes we had the impression that this was the main if not the only thrust of the foreign managers. But also, the Chinese are disciplined and industrious workers that respond well to the simplest of market incentives: monetary rewards. This may be a transitory state but for the time being it is working.

These are not necessarily industries that have simple or rudimentary production technologies, like sewing shirts or stuffing teddy bears. But their main feature is that the technology has been completely mastered and streamlined at the foreign headquarters. Making step motors to drive computer printers is a most exacting and high precision industry. Yet, this factory was functioning and all the bugs had been ironed out when it was moved from Japan to Shenzhen. So, from the point of view of the Chinese operation, it is a very simple factory and all the technology is under strict control. Organizing hundreds of workers to undertake the multi-faceted tasks of repairing automobiles can be a lot more difficult.

When we think of foreign investment, we are accustomed to reason in terms of gigantic multinational enterprises. This is not the case with most of the Chinese foreign investors. On average they are small entrepreneurs in their country of origin. We must remember that the overwhelming majority of the firms are from Hong Kong and not very large at all. Furthermore, many of them have relatively simple technologies. Rather than a disappointment, this is a positive side in this massive effort to bring in foreign investors. If most of them were sophisticated high tech firms, it is likely that the country could not cope with it.

Thanks to this, most of the industries are very labour intensive, fitting in nicely with the factor endowment of the country. At the same time, some firms that use a state of the art core technology may be using horse-driven carts to transport materials. Notwithstanding, the nature of the product may impose a totally automated factory as in the case of the Coca-Cola cans.

Having praised simple production processes, we may ask how much China gains from such industries, in addition to employment and export earnings? Given the type of industries that are coming in, the built-in learning that takes place is somewhat unrelated to the sophistication of the product. Little is learned by assembling printers, toys or shirts. But the electronics parts industry - which in many ways is a simple factory of printed circuit boards and trimmings for consumer electronics - is a kind of industry that provides much in the way of learning. They operate with small batches and every new order is a new challenge for the die makers. They need to interpret requests from clients and prepare all the tooling required. Unpretentious as it might look, among the factories we visited this was the only one that did some R&D.

Factories that cannot resolve all technical problems at headquarters have a greater impact on technology transfer. Printers may be exacting products but there is little learning if the factory is trouble free. There is more learning messing around with all those cigarettes that fall off the machines than in the smoothly functioning tobacco processing unit of the same factory. What matters is the complexity of the roles performed in China, not the contents of complicated black boxes that never have to be repaired or dealt with.

A most important consideration in evaluating the technological consequences of these factories are the linkage effects with the

local industries. Factories that buy a lot from the domestic market tend to spread their quality control standards to the market. Automobile factories are most typical of this phenomenon..

To sum up, China seems to have adopted a very effective path to import technology. It follows a pattern that is not too different from that of the "Four Dragons". It attracts a majority of firms that use up-to-date but relatively simple technologies. Foreign interference seems to have as the number one focus of attention the quality control of export products. As a second priority they help with the technologically complex processes. The end result is that while the technology is only modestly innovative, the inflow is massive. Thousands of foreign factories are being installed every year. The learning process that is taking place is relatively small if we look at each individual factory. After all, there is not that much novelty in assembly lines and similar techniques. But given the scale on which this transfer is taking place, the overall impact seems enormous. Having praised the choice of simple technology and strong initial dependency on foreign assistance does not imply that we consider this as a satisfactory long run situation. Progressively, greater autonomy and higher local sophistication should be pursued.

At the same time, there is already a small proportion of factories with technologies that are more complex, present a greater challenge and have stronger immediate consequences on the technological maturation of the economy.

B. Managing foreign enterprises

"Western management", whatever it means, is somewhat of a magic word in Southern China. The introduction of new management practices is seen as the hallmark of modernization. Authorities and enterprises impute the good results of firms to new management styles. We cannot question such unanimity.

Yet, by visiting these factories it is not very clear what is meant by these innovations in management. There are gadgets like "beeps" and walkie-talkies that have become common place. But salary and occupational scales are very hard to change due to the complexity of the prevailing regulations . Direct Western influences are nowhere to be seen, given the minute presence of Western managers in the plants. Foreign managers are mostly from Hong Kong and they probably bring with them forms of organization which are a mixture of Chinese traditions and Western influences.

However, there is one big difference in these firms. They have introduced economic calculus in their behaviour. To return to microeconomic jargon, they minimize costs and maximize profits. They look at their balance sheets and derive their leit-motif from the difference between earnings and costs. If we compare the extremes, State enterprises and processing firms, we see the differences very clearly. There is a lot of spending in State firms that is not directly productive. From small pagodas to fountains, we see expenditures that do not result in immediately increasing productivity. This does not make them less justifiable, if we accept that profit is not all that matters. But the contrast with the bare-bone processing industries is eloquent. In the latter, buildings are shoddy and poorly kept, not a penny is spent on what does not yield pecuniary results. But the level of activity inside the workshops bears no similarity to the more sedate pace of a State enterprise. Of course, while the typical joint venture is a far cry from some of the processing industries, it operates under the usual rules of profit maximization. Without proposing an ardent defense of neoclassical economics, thus far it seems to be the most robust model for enterprises.

A related issue is the style of "capitalism" that is being brought to Southern China. The Special Economic Zones operate under the so-called "commodity economy", meaning that the overall direction of the economy is planned but in their everyday functioning market rules are to be increasingly adopted. But this is not all there is to it. Comparing the Chinese collectivist system with that of the capitalism of Hong Kong - known to be wild - one would imagine the SEZs to be a kind of intermediate state between the two. Yet, this is not the case. These Southern outbursts of development are more "capitalistic" than Hong Kong in terms of labour markets. The reward system depends more heavily on purely financial incentives. Coming out of a collectivist system in which non-pecuniary incentives were almost exclusively used, the SEZ plunge into very basic forms of market incentives: higher wages for the most productive, dismissal for those who fall short of expectations.

For workers who are very poor, used to hard work in the fields and fully exposed to the appeal of consumerism, the raw incentives of money and the threat of dismissal seem to work wonders. Managers complained of bad habits acquired in State firms but seem to acknowledge that workers reacted well to the new system of incentives. In the capitalistic countries and now also in Hong Kong, such raw rewards soon showed their limitations and needed to be replaced by more sophisticated procedures. This is likely to happen in China somewhere in the future. For the time being the economy operates with a strange mixture of the remnants of the former system and a set of very brash capitalistic incentives.

C. The Training Scene

China has a diversified system of vocational training and technical education. There was a period of intense but improvised in-plant training after the Cultural Revolution. Progressively, these makeshift solutions were replaced by a very fast growth of school-based training in an effort to implement the principle of "training before employment"

It is interesting to notice that there are three main systems of training, preparing different profiles of workers and attached to different branches of public administration (For a more complete presentation see the World Bank Report No. 6789-CHA, *Technical/Vocational Education for China's Development*). The largest system is that of the Secondary Technical Vocational Schools, preparing operative personnel, with enrollments reaching 2,296,000 students in 1985. These schools, attached to the Education Ministry, are somewhat similar to the diversified secondary schools found in many Western countries.

The second largest system comprises the Secondary Technical Schools. Enrollment reaches 1,031,000 on these programmes that prepare junior technicians and depend on technical Ministries.

Finally, there are the Skilled Workers Schools, operated by the Ministries of Labour and Personnel. Enrollment reaches 742,000 in these schools that typically prepare skilled workers for industry.

Despite vigorous efforts to expand school-based training, given the high growth rate of the economy, the number of graduates still falls short of demand. Furthermore, it has been noted that it has become politically difficult to appropriate the additional funds that would be required to expand or improve the system very much. Yet, the problems with these institutions do go beyond their quantitative limitations. The practical and hands-on activities tend to be very inadequate. This was noted in the World Bank report and our interviews confirmed it.

Therefore, the effort of firms to train their own labour is a more than welcome addition to the public initiatives. In fact, this remains a very critical part of Chinese training.

Given the great variety of enterprises, levels of technology and confusing economic systems, the in-plant training scene displays great diversity. As mentioned State firms started very ambitious training programmes after the Cultural Revolution. As we look at their present training situation, one gets the impression that they still devote much effort to training. Given the lifetime stability of their workers, they have few ways of obtaining skills other than training themselves or commissioning courses from training institutions. This excessive inbreeding may be a less than ideal situation, but that is another issue.

Firms with foreign participation show greater variety. Hotels are losing workers at astonishing rates, as much as 20 per cent per year, due to the large expansion of the sector. They have to train many people to replace their losses. Auto factories are very dependent on well-trained workers and, hence, cannot afford to be casual in their training efforts. But many others seem to be putting their profits ahead of training. In some cases, they do relatively little training, considering their prosperity. Others are just too busy keeping up with a backlog of orders. Still others, perhaps the majority, just do very little training. On the whole, one gets the impression that economic calculus has led firms to put the brakes on expenditures like training that do not show immediate economic results.

The increasing freedom firms now enjoy, coupled with emphasis on short run economic results are having dire consequences for training. Being free not to train and sometimes fearing to lose the workers they train to other firms, they take the easy way out: they train very little. Indeed, this is one of the most serious weakness of the new economic system, as we perceive it.

It may be useful to review the ways and means by which firms obtain trained staff. Table 1 summarizes some vital statistics from the 15 enterprises.

(i) The classical way of getting trained labour is to hire them as they leave school. The State firms do that as a rule. They hire technicians, engineers and also skilled workers. But joint ventures seem less prone to hire these graduates. One reason is very practical. Being concentrated in the South, the supply from schools is pitifully insufficient to meet the demand, given the exhilarating growth rates. But in addition, they are not happy with the quality of the training. They complain that all they learn is theory and that the practical side is sorely lacking. They are also less interested in the formal diplomas, being willing, for instance, to deploy university graduates as skilled labourers.

(ii) In market economies, one obvious way of getting skills is to take them from other firms. The fact is, people carry technology better than books or courses. Traditionally, this was not done in China, given the "iron rice bowl" which engendered extremely low labour turnover. Now, in order to create incentives for the joint ventures, these are allowed to

poach from other firms. As much as this may be a policy fully justified by the need to attract foreign capital, it constitutes a drain on human capital from the State firms which are the obvious targets for such piracy. In most of the joint ventures visited the workers skilled in the traditional trades (mechanics, electricity, woodworking, etc) were taken from State firms.

(iii) The most common and pervasive form of training we found were the programmes organized in-plant. All the firms visited, one way or another, offered training. Of course, in China as elsewhere, the meaning of this training is highly variable. It may last several months and include hundreds of classroom hours. Or, it may be one-month programmes in which trainees are shown what to do, get closer follow up from the overseer and are paid less. To suggest that most training is closer to the second case, notice that only two firms have training centres. Apprenticeship, as practiced in the Germanic countries, is not common in China. In other words, most of the initial training offered simultaneously to work does not have the length, the depth or the conceptual rigour that would allow it to be considered as apprenticeship.

(iv) Only six firms used foreign trainers in their programmes. This is a pity, as it represents a foregone opportunity. One of the interesting possibilities opened up by having a foreign partner is sharing their richer experience in training. This also affects the quality of materials used. Chinese training materials are known to be less than satisfactory. Having a foreign partner is a welcome opportunity to tap their sources of training materials. But this is not done often enough.

(v) Only one firm sent its workers for internships in other Chinese firms. This is probably another manifestation of the high inbreeding of Chinese firms. In contrast, six firms sent workers abroad for internships at the headquarters of their foreign partners. This is an expensive form of training but it is very likely to be cost-effective. Confirming our hypothesis that there is under-investment in training, half of the foreign firms did not send trainees abroad.

(vi) Five firms sent their workers abroad for courses. This is an expensive investment but probably one with commensurate returns. It seems that fear of losing the trainee to competitors may be one of the deterrents to more frequent courses abroad. The financial compensation asked from workers if they leave (or from the firm that bids for his contract) is not sufficient to neutralize this risk.

(vii) Only one firm indicated that they sent their workers to continuing education programmes in town or enrolled them in distance education. Possibly this is a solution more favoured by State firms and only two were in our sample.

To sum up, there is much variety in the training offered and one cannot take for granted the efforts and the benefits of training done by several firms. But at the same time, one cannot escape the feeling that not enough is being done. Opportunities are being missed.